MECHANICAL VENTILATION WITH HEAT RECOVERY (MVHR)

IMPROVING INDOOR AIR QUALITY IN NEW HOMES

Proud to Build British

Nuaire is a world leader in the design and manufacture of fans and ventilation systems. We put our energy into efficient ventilation so you don't waste yours.

Nuaire is a privately owned, British company that designs and manufactures innovative ventilation products for the residential and commercial sectors. We are proud to be recognised for our expertise, commitment to innovation and the outstanding quality of our products and customer service.

People are the heart of Nuaire, and we have over 400 staff at our headquarters with a further 65 technical sales engineers throughout the UK and Ireland.

MADE IN
GREAT BRITAIN

Based in South Wales, our factory covers 18,000m², allowing us to manufacture almost all of our products on site; from small bathroom fans to large air handling units.

In recent years Nuaire has invested millions of pounds into new manufacturing plant to supports its plans for growth.

"Our manufacturing facility is approximately 4 x the size of the Wembley pitch"

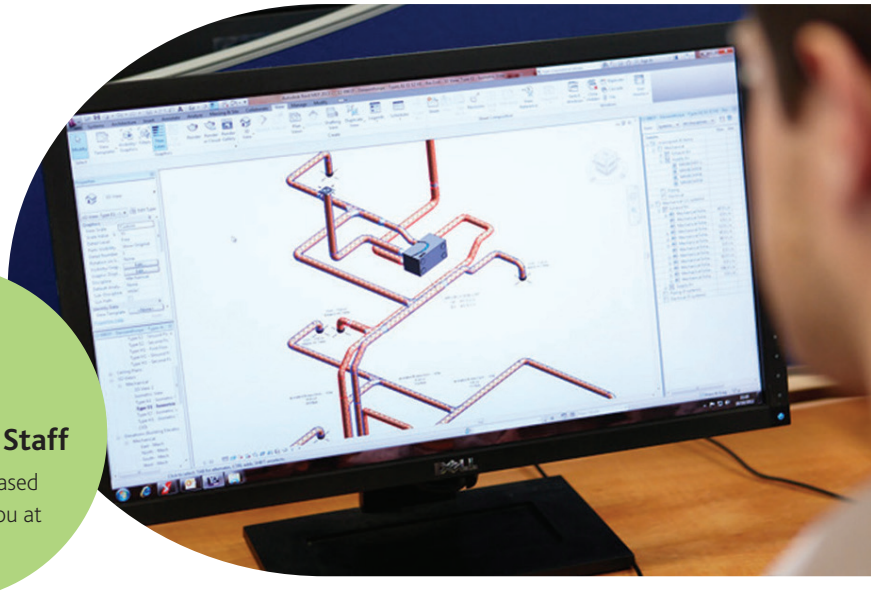
Nuaire's technical application team can offer expert advice and support to help you make the right choice in your ventilation strategy. Providing a simple, quick selection or offering advice on compliance with the very latest building regulations and environmental issues, we are here for you every step of the way.

GETTING IT RIGHT FROM THE START

housebuilder product awards 2014 winner

Advice On Compliance and SAP Q

Stay ahead of the latest building regulations and make the best product and fabric choices.



Over 65 Sales Staff

Field and office based staff to support you at every stage.

Gold Star Aftercare

Our comprehensive product warranty and dedicated after sales support gives you peace of mind.

Nuaire Academy

To ensure your installers get the best from your system and meet Building Regs, Nuaire offers BPEC training. This is free of charge to our customers delivered from our BPEC Accredited Training Centre.

The Full Service

Help with product selection, detailed parts lists and fast delivery ensure you meet your deadline and budget.

MECHANICAL VENTILATION WITH HEAT RECOVERY (MVHR - System 4)

Heat recovery (MVHR) is fast becoming the most popular strategy for effective whole home ventilation for new build properties.

A proven low-energy, highly efficient ventilation method, Nuaire's heat recovery MRXBOX range offers all year round ventilation by extracting moisture and supplying fresh air, whilst recovering the heat that would otherwise be lost. The MRXBOXAB's is the first MVHR range on the market with integral automatic summer bypass as standard.

Nuaire offers the widest range of heat recovery systems in the UK, specifically designed to meet building regulations with the best SFPs/SAP Q scores. With a range of compact wall and loft units designed to suit every size and type of property, Nuaire will have a unit to fit the requirements of your project.

With Government legislation and building regulations for low leakage rates, air-tight buildings may lead to poor indoor air quality.

Nuaire's award winning, wide range of MVHR solutions are 95% efficient and will quietly and effectively provide fresh, filtered air all year round. MVHR systems will retain heat that would otherwise have been lost to outside and warm incoming fresh air, if required.

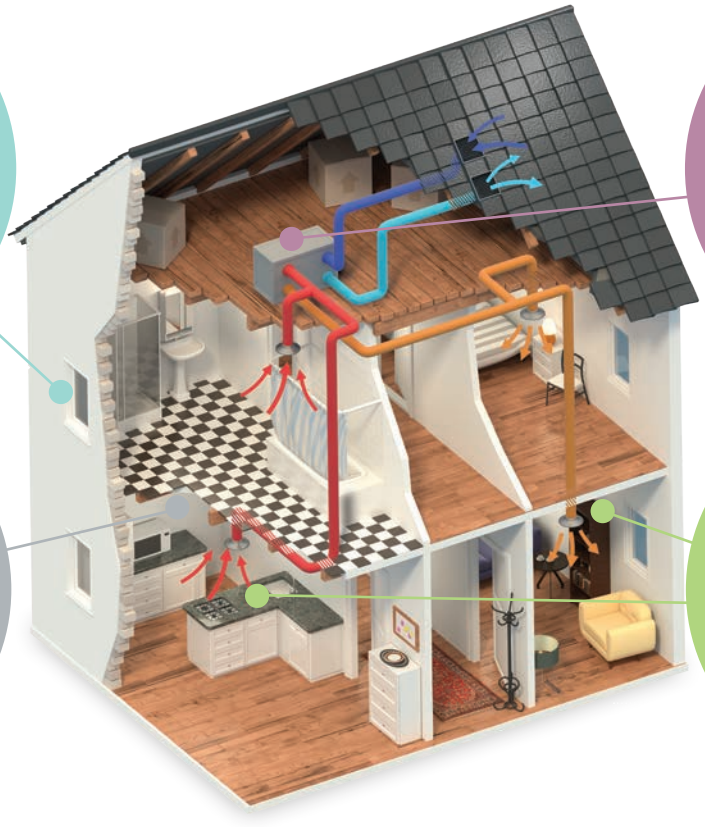
MVHR How does it work?

NO NEED TO OPEN WINDOWS TO VENTILATE

Clean fresh air is continuously drawn into the property from outside through the supply air ducting.

HIGH EFFICIENCY FILTERS HELP CREATE A HEALTHY LIVING ENVIRONMENT

Clean, fresh air passes through the filter inside the unit and into the counter-flow heat exchanger, where it is warmed using the heat recovered from extract before it is delivered to the habitable rooms of the home.



BOOST FACILITY

Both the supply and extract air can be boosted at any time by the home owner to increase the ventilation levels.

Light switches, PIRs and Humidistats can be used.

PREVENTS CONDENSATION BY KEEPING MOISTURE LEVELS LOW

Stale air is continuously extracted from the moisture producing areas, such as kitchens and bathrooms.

The MVHR unit takes advantage of the heat by absorbing up to 95% of it and storing it in the heat exchanger.

All the options you need

Ventilation is often overlooked, or considered late in the construction when joists and other services are installed.

Nuaire offer a wide range of solutions, including MVHR's for wall, loft or ceiling mount. Nuaire also offer acoustic solutions to ensure you not only meet building regulations, but ensure efficient, whisper-quiet performance.

WALL

VOID

LOFT

Design Services

Nuaire's Technical Application Team can offer expert advice and support on design.

Services include supporting 3D CAD illustrations to illustrate choice of product, ducting and ancillaries. This bespoke package enables correct selection and aids project management and site control.

As well as a simple, clean system layout in 3D showing ventilation, Nuaire provides a complete parts list with installation visuals.

Building Regulations Part F

Table 5.1a Extract Ventilation Rates			
Room	**Intermittent Extract**	**Continuous Extract**	
	Minimum Rate	**Minimum High Rate**	**Minimum Low Rate**
Kitchen	30 l/s adjacent to hob, or 60 l/s elsewhere	13 l/s	Total extract rate should be at least the whole dwelling ventilation rate given in Table 5.1b
Utility Room	30 l/s	8 l/s	
Bathroom	15 l/s	8 l/s	
Sanitary Accommodation	6 l/s	6 l/s	

Table 5.1b Whole Dwelling Ventilation Rates					
	Number of bedrooms in dwelling				
	1	**2**	**3**	**4**	**5**
Whole dwelling ventilation rate[a,b] (l/s)	13	17	21	25	29

Notes:
a. In addition, the minimum ventilation rates should be no less than 0.3 l/s per m^2 of internal floor area (this includes all floors, e.g. for a two-storey building, add the ground and first floor areas).

b. This is based on two occupants in the main bedroom and a single occupant in all other bedrooms. This should be used as the default value. If a greater level of occupancy is expected, add 4 l/s per occupant.

Design of continuous mechanical extract systems

System 3 (Continuous Mechanical Extract) has been sized for the winter period. Additional ventilation may be required during warmer months and it has been assumed that the provisions for purge ventilation (e.g. openable windows) could be used.

Step 1: Determine the whole dwelling ventilation rate from Table 5.1b.

(Note: no allowance is made for infiltration as the extract system lowers the pressure in the dwelling and all air flow through infiltration paths does not increase the overall ventilation rate.)

Step 2: Calculate the whole dwelling extract ventilation rate by summing the individual room rates for 'minimum high rate' from Table 5.1a.

(For sanitary accommodation only, as an alternative, the purge ventilation provisions can be used where security is not an issue. In this case the 'minimum high extract rate' for the sanitary accommodation should be omitted from the Step 2 calculation.)

Step 3: The required extract rates are as follows:

The maximum whole dwelling extract ventilation rate (i.e. the boost rate) should be at least the greater of Step 1 and Step 2. Note that the maximum individual room extract rates should be at least those given in Table 5.1a for minimum high rate.

The minimum whole dwelling extract ventilation rate should be at least the whole dwelling ventilation rate found in Step 1.

Location of Ventilation Devices

- Extract should be from each wet room.
- Mechanical extract terminals and fans should be installed as high as is practicable and preferably less than 400mm below the ceiling.
- Where ducts etc are provided in a dwelling with a protected stairway, precautions may be necessary to avoid the possibility of the system allowing smoke or fire to spread into the stairway.

Air Transfer

- To ensure good transfer of air throughout the dwelling, there should be an undercut of minimum area 7600mm^2 in all internal doors above the floor finish. This is equivalent to an undercut of 10mm for a standard 760mm width door. This should be achieved by making an undercut of 10mm above the floor finish if the floor finish is fitted, or by a 20mm undercut above the floorboards, or other surface, if the finish has not been fitted.

Controls

- Should be set up to operate without occupant intervention, but may have manual or automatic controls to select the boost rate. Any manual boost controls should be provided locally to spaces being served, e.g. bathrooms and kitchen, as provision of a single centrally located switch may result in fans being left in an inappropriate mode of operation. Automatic controls could include sensors for humidity, occupancy/usage and pollutant release. Humidity controls should not be used for sanitary accommodation as odour is the main pollutant.
- In kitchens, any automatic control must provide sufficient flow during cooking with fossil fuel (e.g. gas) to avoid build up of combustion products.
- Ensure that the system always provides the minimum whole dwelling ventilation rate specified in table 5.1b.

Where manual controls are provided, they should be within reasonable reach of the occupants. It is recommended that they are located in accordance with the guidance of Requirement N3 Safe Opening And Closing of Windows etc., which is given in Approved Document N. Where reasonable, pull cords, operating rods or similar devices should be provided.

Noise

Any continuously running fans should be quiet so as not to discourage their use by occupants.

MVHR Product Selector

	WALL MOUNTED							LOFT			LOW PROFILE
Page No.	10	10	16	16	22	22	28	45	38	38	33
	MRXBOX95-WM1	MRXBOX95AB-WM1	MRXBOX95-WM2	MRXBOX95AB-WM2	MRBOX95-WH1	MRXBOX95AB-WH1	MRXBOX95AB-WH2	MRXBOX95-LOFT	MRXBOX95-LH1	MRXBOX95-LH2	MRXBOX95B-LP1
Feature	For properties up to 60m²/660ft²	For properties up to 60m²/660ft²	For properties up to 100m²/1100ft²	For properties up to 100m²/1100ft²	For properties up to 150m²/1600ft²	For properties up to 150m²/1600ft²	For properties up to 270m²/2900ft²	For properties up to 60m²/660ft²	For properties up to 150m²/1600ft²	For properties up to 200m²/2150ft²	For properties up to 100m²/1100ft²
Kitchen + up to 2 wet rooms	■	■	■					■			
Kitchen + up to 5 wet rooms			■	■	■						
Kitchen + up to 6 wet rooms			■	■	■					■	■
Kitchen + up to 7 wet rooms					■	■			■		
Kitchen + up to 8 wet rooms					■	■	■		■		
Discreet Run Monitor	■	■	■	■	■	■	■	■			■
Integral automatic summer bypass		■		■		■	■				■
Optional automatic summer bypass								■			■
Integral frost protection	■	■	■	■	■	■	■	■	■	■	
Integral humidistat		■		■		■	■				
Optional sensors and detectors	■	■					■	■			
Optional remote commissioning box											■
Summertime boost facility			■	■	■	■	■				■
MRXBOX-VSC LCD Controller compatible			■	■	■	■	■				

TOTAL CONTROL WITH THE LIGHTEST TOUCH

...what a breath of fresh air

Simple, intuitive and discreet, the Nuaire LCD control - MRXBOX-VSC puts you in total control of your MVHR system. With a wide range of functions and settings, no other product gives you the freedom to tailor performance, while saving energy.

For more details call 029 2085 8500
email enquiries@nuaire.co.uk
or visit www.nuaire.co.uk/residential

Touch Screen Controller for MVHR: MRXBOX-VSC

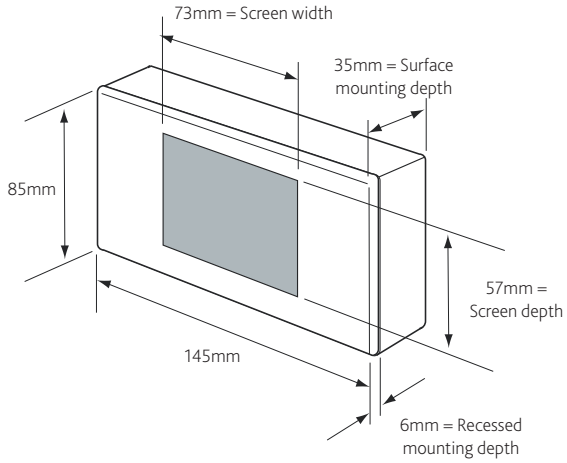
The stylish touch screen wired controller has been designed to make controlling your MVHR ventilation system simple, for both the installer and the end user.

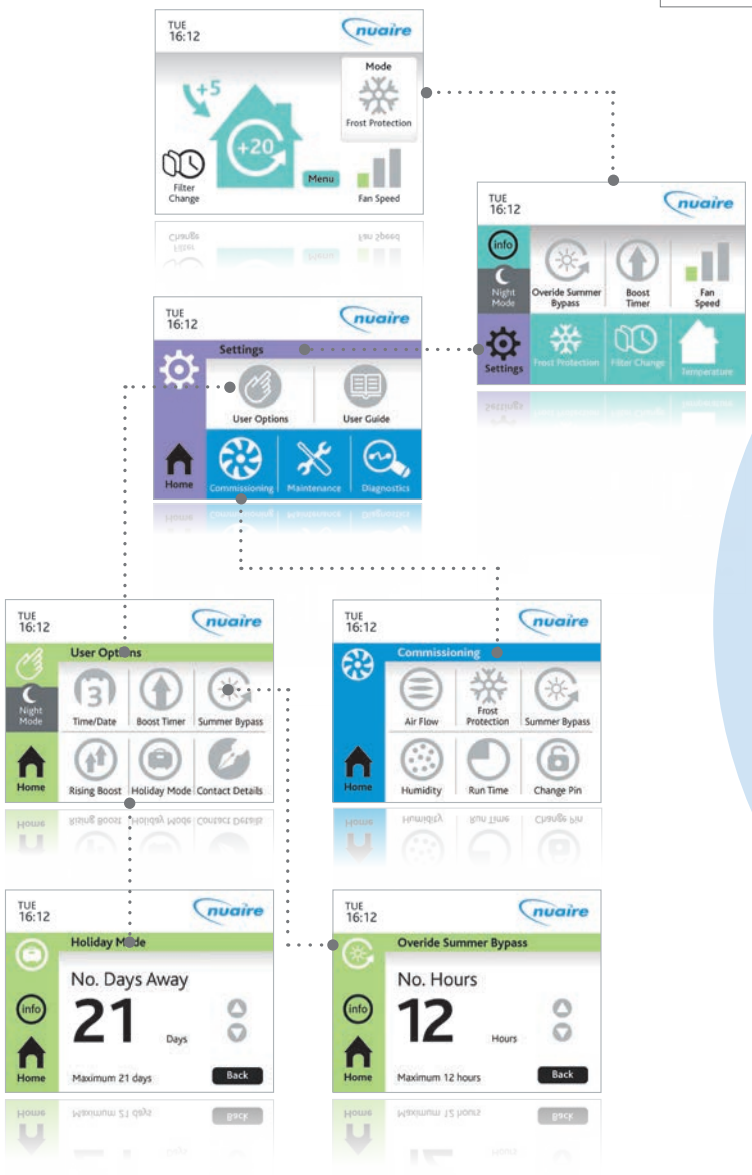
With a 3.2" touch screen display, the unit can be surface or semi-recess mounted and is compatible with standard 2 gang recess back box.

When installing the MVHR, you can commission the unit through the controller and program settings such as air flow, frost protection and summer bypass.

For the end user, they will be able to tailor the unit to suit their lifestyle, through setting a timed or rising boost, or even putting the unit into holiday or night mode to save on energy.

DIMENSIONS





FLEXIBLE CONTROL OPTION

MRXBOX95AB-WM1 (with automatic summer bypass) & MRXBOX95-WM1

The MRXBOXB95AB-WM1 has been designed with automatic summer bypass and the facility to commission the supply and extract fans independently on both minimum and maximum speeds, in addition to the features you will find on the standard MRXBOX95-WM1.

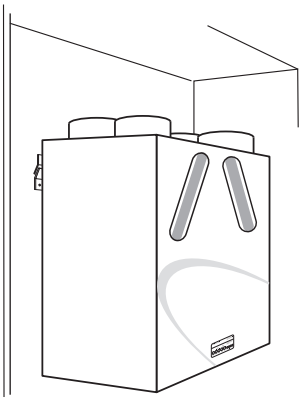
Both the MRXBOXBOX95AB-WM1 and MRXBOX95-WM1 are designed to provide optimised balanced (supply and extract) mechanical ventilation with heat recovery. Tempered air is delivered into 'living areas' whilst extracting moisture laden air from 'wet' areas, creating comfortable well - ventilated homes. The unit uses the latest generation of low voltage DC fans and motors, counter flow heat exchanger and easy accessible controls. The heat exchanger block can recover up to 95% of the normally wasted heat. The two independent fans have full speed control for background and boost ventilation rates as well as a run-on timer facility and adjacent smoke detectors.
Both units are listed on the Product Characteristics Database.

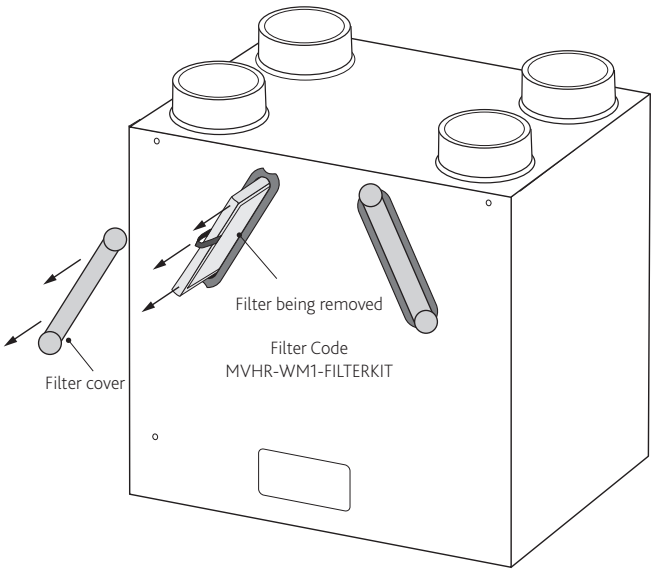
Sensors for the MRXBOX95(AB)–WM1 include:

- MRXBOX95-PIR (Passive Infra Red) - A low voltage sensor, detects movement and activates system. Incorporates overrun timer and timer adjustments.
- MRXBOX95-HUM - A low voltage sensor, activates the system when the RH level is above set point. Incorporates overrun timer and RH set point level adjustment.
- MRXBOX95-RFI - If fan failure occurs, the audio visual indicator will flash a warning.

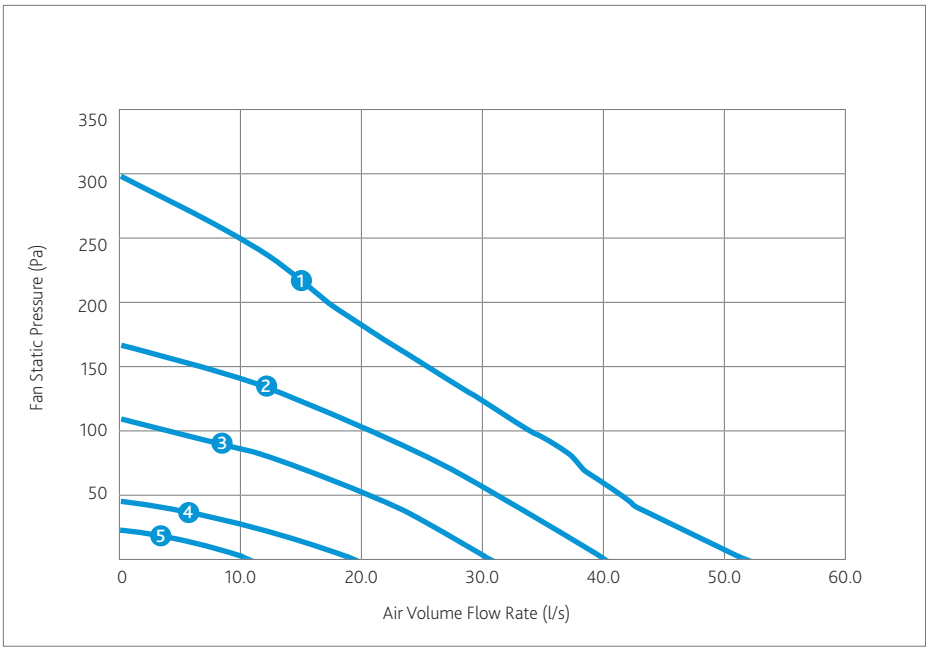
Typical Installation

INSTALLATION FEATURES





Performance - MRXBOX95(AB)-WM1



CODE DESCRIPTION

MRXBOX95-WM1

1 2 3 4

1. Multi-room supply and extract heat recovery
2. Product range
3. Efficiency
4. Wall/cupboard application
5. Medium duty

MRXBOX95 AB -WM1

1 2 3 4 5 6

1. Multi-room supply and extract heat recovery
2. Product range
3. Efficiency
4. Automatic Summer Bypass
5. Wall/cupboard application
6. Medium duty

Electrical & Sound

	Maximum power consumption		Sound Power Levels dB re 1pW								dBA @3m
Curve	(Watts)		63	125	250	500	1K	2K	4K	8K	Curve
1	71	Open inlet	45	41	48	47	41	39	24	24	30
		Open Outlet	48	51	57	48	54	47	39	33	41
		Breakout	51	50	53	51	43	38	30	26	33
2	39	Open inlet	44	39	46	44	36	34	20	19	26
		Open Outlet	44	48	52	53	48	41	29	25	36
		Breakout	50	48	51	48	38	33	25	21	30
3	21	Open inlet	42	38	43	37	31	26	20	17	21
		Open Outlet	42	46	49	49	42	35	23	19	31
		Breakout	48	46	47	44	32	27	19	15	26
4	10	Open inlet	40	35	39	32	23	18	12	9	16
		Open Outlet	40	43	44	43	33	20	14	13	24
		Breakout	46	43	43	38	23	18	10	6	21
5	5	Open inlet	35	29	30	20	5	-	-	-	<10
		Open Outlet	36	38	37	33	18	11	-	-	15
		Breakout	42	38	36	28	8	3	-	-	13

The maximum power consumption shown above (Watts) is consumed on units running continuously, not taking into account any heat recovery saving and based on SAP Appendix Q testing.

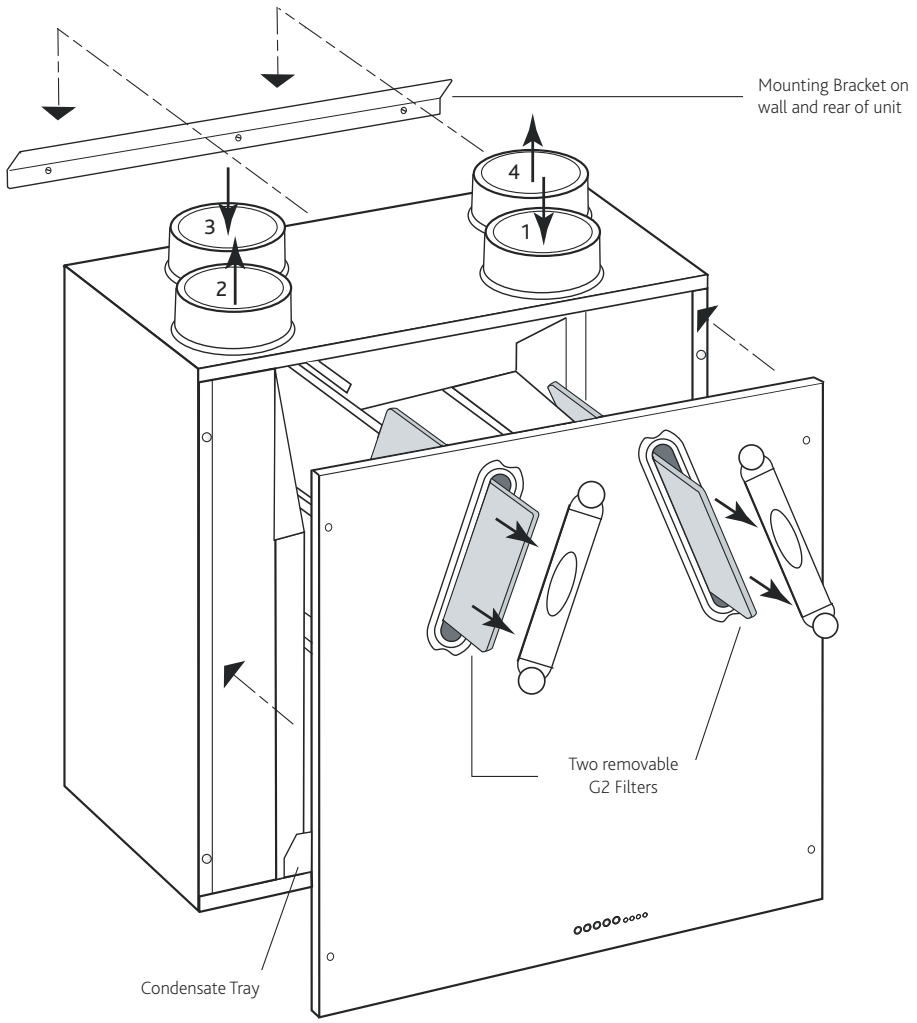
Sap Appendix Q Test Results

	MRXBOX95AB-WM1			MRXBOX95-WM1		
Application	Specific Fan Power (W/l/s)	Heat Exchange Efficiency	Energy Saving Trust Best Practice Compliant	Specific Fan Power (W/l/s)	Heat Exchange Efficiency	Energy Saving Trust Best Practice Compliant
Kitchen + 1 Wet Room	0.72	86%	Yes	0.59	93%	Yes
Kitchen + 2 Wet Room	0.87	86%	Yes	0.69	92%	Yes

General Arrangement

SPIGOT LOCATION &
DUCTING REFERENCES

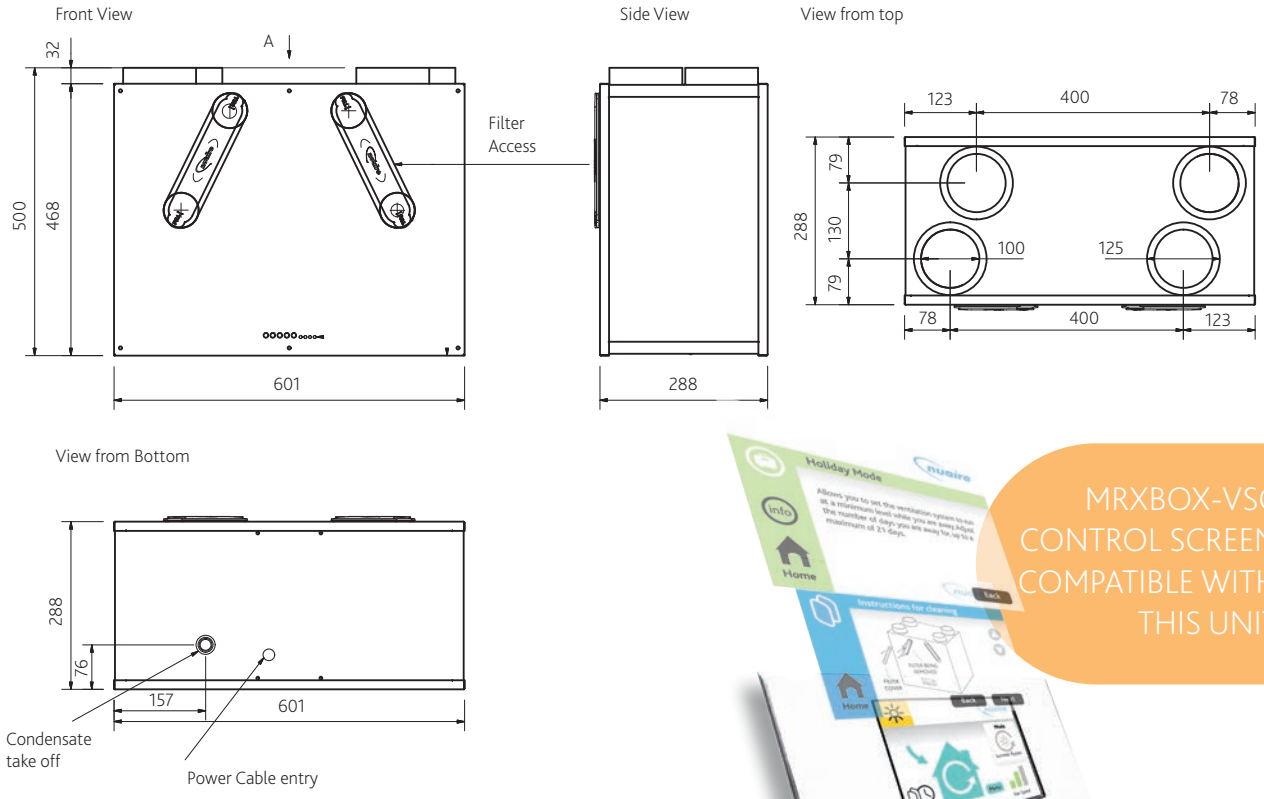
Spigot 1. 125mm dia. = extract air from dwelling.
Spigot 2. 125mm dia. = exhaust air to outside.
Spigot 3. 125mm dia. = intake air from outside.
Spigot 4. 125mm dia. = supply air to house.



Technical - MRXBOX95(AB)-WM1

DIMENSIONS (MM)

Weight - 16kg



MRXBOX-VSC CONTROL SCREEN COMPATIBLE WITH THIS UNIT

Electrical Details

Please note: the electrical connection of the unit must be carried out by a qualified electrician.

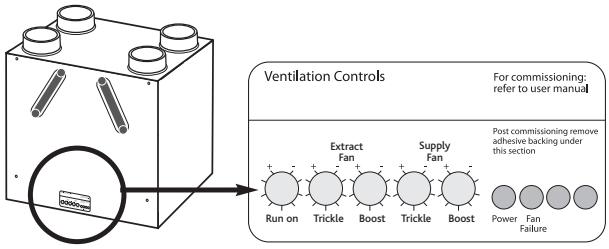
The unit is supplied with a flexible cord for connection to the mains supply.

NOTE: This unit must be earthed.

The mains power supply cable should be connected to a fixed wiring installation, via a fused isolator, in accordance with current IEE wiring regulations.

ELECTRICAL DETAILS: MRXBOX95-WM1	
Voltage:	230V 1ph 50Hz
Consumption:	75W - 0.6 Amp
Fuse rating:	3 Amp

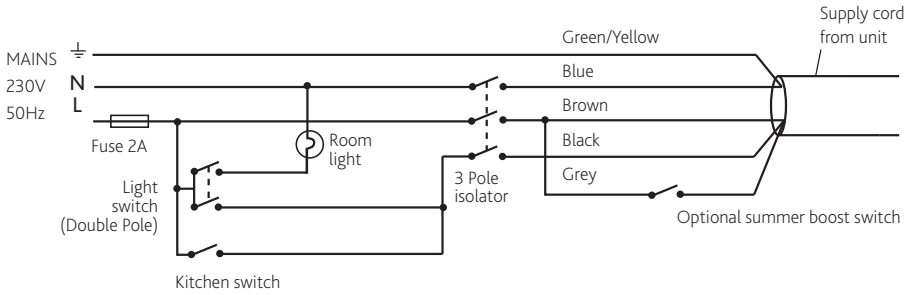
Detail of unit control on front panel.



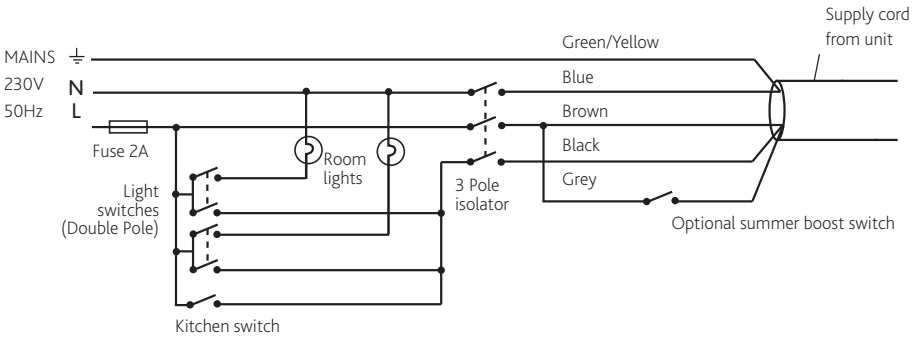
Tamper proof label following commissioning, includes system status indication.

Wiring - MRXBOX95(AB)-WM1

UNIT SERVING KITCHEN & BATHROOM



UNIT SERVING KITCHEN & TWO BATHROOMS



OPTIONAL SENSORS AND DETECTORS

Customise MRXBOX95AB-WM1 for enhanced performance. All supplied with pre-plugged 10m data cable and incorporates status LED.

MRXBOX95-PIR (passive infra red)

A low voltage sensor, detects movement and activates system. Incorporates overrun timer and timer adjustments.

MRXBOX95-HUM

A low voltage sensor, activates the system when the RH level is above set point. Incorporates overrun timer and RH setpoint level adjustment.

MRXBOX95-RFI

If fan failure occurs the audio visual indicator will flash a warning.

Consultants Specification

OPERATION

The supply and extract system shall be wall/cupboard mounted in accordance with the specification.

The combined supply and extract with heat recovery unit, shall supply filtered fresh air to each of the habitable rooms and vitiated air shall be extracted from all wet areas, e.g. bathroom, en suite, w.c, kitchen, utility rooms etc. The supply air shall be pre-heated by the warm extract air via the integrated counter-flow heat exchanger element.

The ventilation unit shall vary its speed and therefore the ventilation rate, as it receives signals from one of the following:

- Switched live signal from light/remote switches
- Optional externally interconnected sensors

When signals are received, the fan shall alter its speed to adjustable, normal and boost rates.

An adjustable run-on facility is integrated into the unit which allows the fans to run-on for between 1 and 60 minutes after the signals have been switched off.

The unit shall have the facility to commission the supply and extract fans independently on minimum speed (continuous background ventilation), and boost speed, via inbuilt minimum and maximum speed adjustment. The fans shall have infinitely variable speed control.

UNIT SPECIFICATION

The unit shall be fully insulated providing excellent thermal and acoustic characteristics and shall be complete with a multi plate counter flow high efficiency heat exchanger block, with a thermal efficiency of up to 95%. The heat exchanger shall be protected by G2 grade filters on fresh air inlet and system extract. The heat exchanger and filters shall be accessible via the front access panel, enabling quick and easy maintenance.

The unit shall have low energy, high efficiency d.c. fan/motor assemblies with sealed for life bearings, the impellers shall be backward curved centrifugal type. The motors shall be suitable of an ambient temperature of 40ºC.

The unit shall be supplied complete with an insulated condensate drip tray and 21.5mm drain connection.

The unit shall be suitable for 125mm circular ducting.

The breakout noise level and power requirements shall be as detailed by the unit manufacturer and in accordance with the ventilation equipment schedule.

CONTROL OPTIONS

All versions shall have the following functions integrally mounted within the fan unit on a purpose made PCB, all such components pre-wired and factory fitted by the manufacturer: -

- Independent control of background supply and extract flow rates.
- Independent control of boost speed supply and extract flow rates.
- Integral heat exchanger frost protection.
- Integral adjustable run on timer.
- Fan failure indication.
- Integral S/L terminal for boost from remote switch, e.g. light switch.
- Indication and controls – The unit shall have clear LED visual indication for maintenance, servicing and operation mode, i.e. summer bypass, frost protection.

INTEGRAL AUTOMATIC SUMMER BYPASS – MRXBOX95AB-WM1

The bypass damper shall open automatically via a wax actuator, allowing the air to bypass the heat exchanger to deliver fresh filtered air during the warmer months.

MRXBOX-VSC (VISUAL SYSTEM CONTROLLER)

The MRXBOX-VSC is compatible with the Nuaire MRXBOX95(AB)-WM1 heat recovery units, the controller comes complete with commissioning and end user functions.

The display will be a 3.2" LCD display and will remain on standby until such time the screen is touched.

The initial display will show the MVHR system status as listed below:

- Current Fan Speed
- Current indoor/outside temperature (MRXBOX95AB units only)
- Indicate when the summer bypass is activated
- Indicate when frost protection is activated
- Indicate when the filters require cleaning/changing.

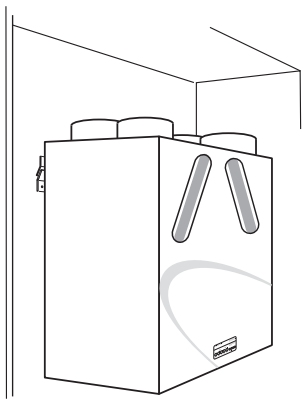
MRXBOX95AB-WM2 (with automatic summer bypass) & MRXBOX95-WM2

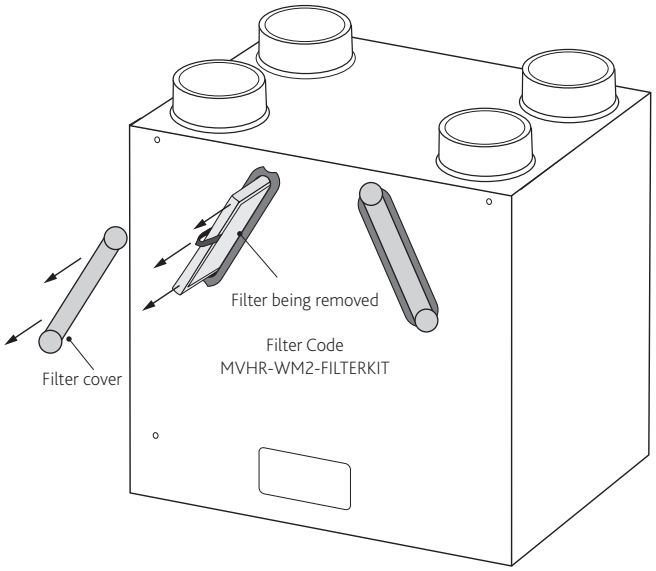
The MRXBOX95AB-WM2 has been designed with automatic summer bypass and the facility to commission the supply and extract fans independently on both minimum and maximum speeds.

Both the MRXBOX95AB-WM2 and MRXBOX95-WM2 are designed to provide optimised balanced (supply and extract) mechanical ventilation with heat recovery. Tempered air is delivered into 'living areas' whilst extracting moisture laden air from 'wet' areas, creating comfortable well ventilated homes. The unit has the facility to commission the supply and extract fans independently on both minimum and maximum speeds. The heat exchanger block can recover up to 90% of the normally wasted heat. Both units are listed on the Product Characteristics Database.

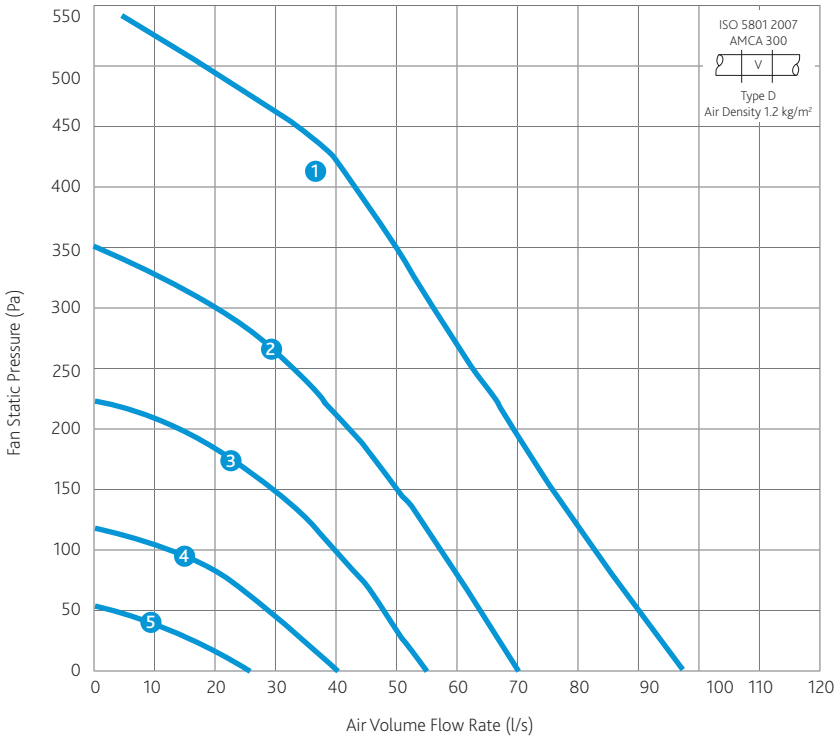
Typical Installation

INSTALLATION FEATURES





Performance - MRXBOX95(AB)-WM2



CODE DESCRIPTION

MRXBOX95-WM2

1 2 3 4

1. Multi-room supply and extract heat recovery
2. Product range
3. Efficiency
4. Wall/cupboard application
5. Medium duty

MRXBOX95AB-WM2

1 2 3 4 5 6

1. Multi-room supply and extract heat recovery
2. Product range
3. Efficiency
4. Automatic Summer Bypass
5. Wall/cupboard application
6. Medium duty

Electrical & Sound

	Maximum power consumption		Sound Power Levels dB re 1pW								dBA @3m
Curve	(Watts)		63	125	250	500	1K	2K	4K	8K	Curve
1	150	Open inlet	57	57	61	56	50	47	36	34	40
		Open Outlet	55	65	71	67	64	60	51	43	52
		Breakout	61	61	56	53	47	44	35	33	37
2	75	Open inlet	51	51	55	48	40	35	25	20	32
		Open Outlet	53	59	61	58	55	52	39	32	43
		Breakout	56	55	51	44	38	35	23	17	29
3	36	Open inlet	48	48	48	42	33	28	18	<16	26
		Open Outlet	52	56	55	53	49	45	32	25	37
		Breakout	52	54	47	39	33	30	<16	<16	26
4	14	Open inlet	44	44	39	34	27	21	<16	<16	18
		Open Outlet	51	52	49	48	43	37	25	18	31
		Breakout	49	52	44	34	29	25	<16	<16	22
5	8	Open inlet	40	39	25	22	18	<16	<16	<16	<16
		Open Outlet	50	48	41	41	36	24	17	<16	24
		Breakout	46	50	39	27	22	19	<16	<16	18

The maximum power consumption shown above (Watts) is consumed on units running continuously, not taking into account any heat recovery saving and based on SAP Appendix Q testing.

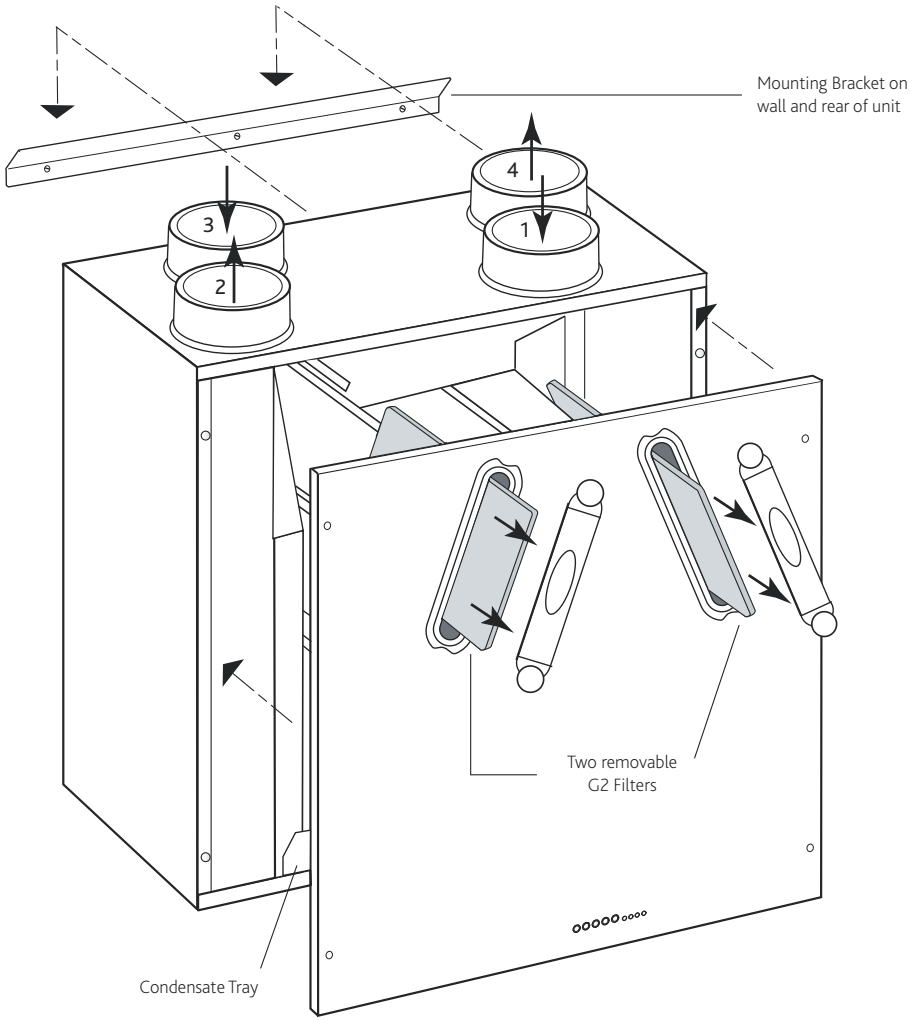
Sap Appendix Q Test Results

	MRXBOX95AB-WM2			MRXBOX95-WM2		
Application	Specific Fan Power (W/l/s)	Heat Exchange Efficiency	Energy Saving Trust Best Practice Compliant	Specific Fan Power (W/l/s)	Heat Exchange Efficiency	Energy Saving Trust Best Practice Compliant
Kitchen + 1 Wet Room	0.53	87%	Yes	0.54	89%	Yes
Kitchen + 2 Wet Room	0.53	86%	Yes	0.54	87%	Yes
Kitchen + 3 Wet Room	0.60	85%	Yes	0.62	87%	Yes
Kitchen + 4 Wet Room	0.73	84%	Yes	0.73	86%	Yes
Kitchen + 5 Wet Room	0.84	84%	Yes	0.87	86%	Yes

General Arrangement

SPIGOT LOCATION &
DUCTING REFERENCES

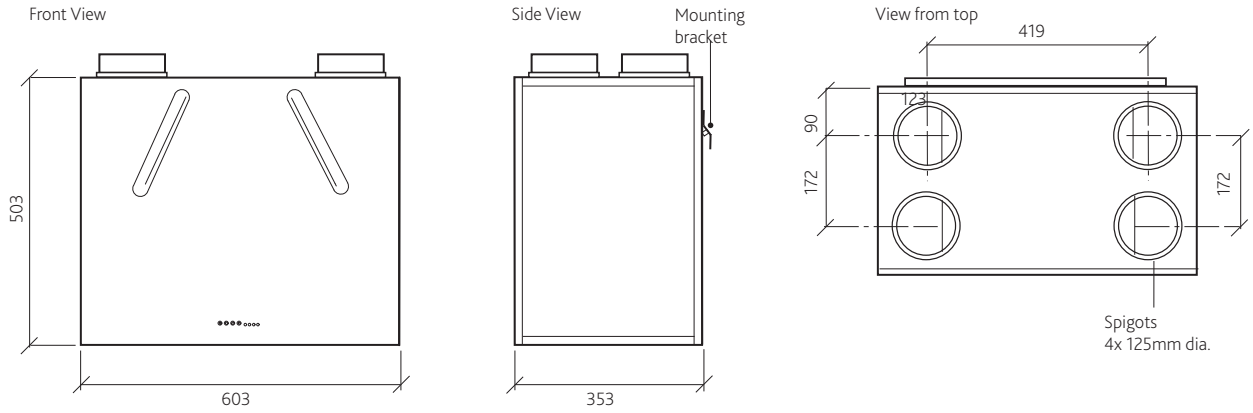
Spigot 1. 125mm dia. = extract air from dwelling.
Spigot 2. 125mm dia. = exhaust air to outside.
Spigot 3. 125mm dia. = intake air from outside.
Spigot 4. 125mm dia. = supply air to house.



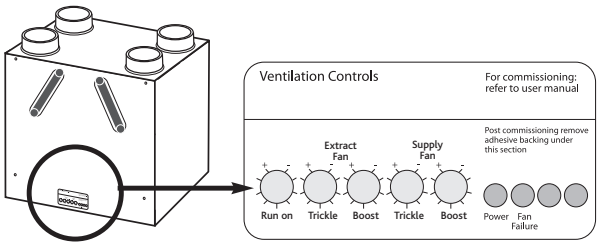
Technical - MRXBOX95(AB)-WM2

DIMENSIONS (MM)

Weight - 21kg



Detail of unit control on front panel.



Tamper proof label following commissioning, includes system status indication.

Electrical Details

Please note: the electrical connection of the unit must be carried out by a qualified electrician.

The unit is supplied with a flexible cord for connection to the mains supply.

NOTE: This unit must be earthed.

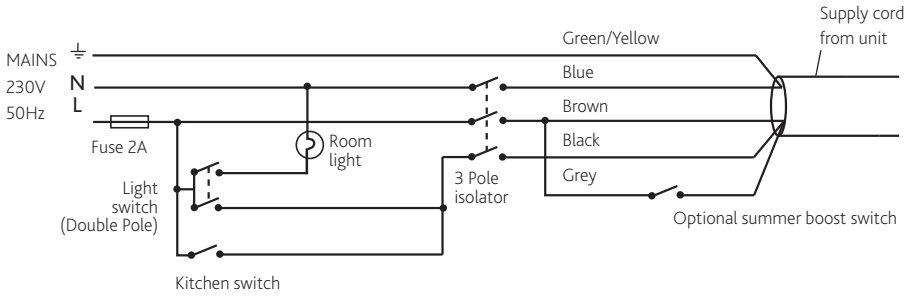
The mains power supply cable should be connected to a fixed wiring installation, via a fused isolator, in accordance with current IEE wiring regulations.

ELECTRICAL DETAILS: MRXBOX95-WM2	
Voltage:	230V 1ph 50Hz
Consumption:	WM2 - 1.3 Amp
Fuse rating:	3 Amp

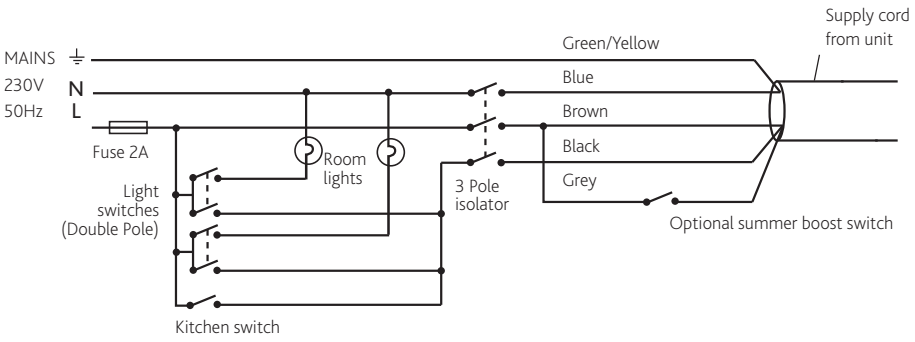
MRXBOX-VSC CONTROL SCREEN COMPATIBLE WITH THIS UNIT

Wiring - MRXBOX95(AB)-WM2

UNIT SERVING KITCHEN & BATHROOM



UNIT SERVING KITCHEN & TWO BATHROOMS



Consultants Specification

OPERATION

The supply and extract system shall be positioned as indicated on the drawings and shall be in accordance with the particular fan schedule in the specification.

The combined supply and extract with heat recovery unit, shall supply filtered fresh air to each of the habitable rooms and vitiated air shall be extracted from all wet areas, e.g. bathroom, en suite, w.c, kitchen, utility rooms etc. The supply air shall be pre-heated by the warm extract air via the integrated counter-flow heat exchanger element. The extracted air shall also be filtered before it reaches the heat exchanger block.

The ventilation unit shall vary its speed and therefore the ventilation rate, as it receives signals from one of the following:

- Switched live signal from light/remote switches

When signals are received, the fan shall alter its speed to adjustable, normal and boost rates.

An adjustable run-on facility is integrated into the unit which allows the fans to run-on for between 1 and 60 minutes after the signals have been switched off.

The unit shall have the facility to commission the supply and extract fans independently on minimum speed (continuous background ventilation), and boost speed, via inbuilt minimum and maximum speed adjustment. The fans shall have infinitely variable speed control.

UNIT SPECIFICATION

The unit shall be fully insulated providing excellent thermal and acoustic characteristics and shall be complete with a multi plate counter flow high efficiency heat exchanger block, with a thermal efficiency of up to 90%. The heat exchanger shall be protected by G3 grade filters on fresh air inlet and system extract. The heat exchanger and filters shall be accessible via the front access panel, enabling quick and easy maintenance.

The unit shall have low energy, high efficiency EC fan/motor assemblies with sealed for life bearings, the impellers shall be backward curved centrifugal type. The motors shall be suitable of an ambient temperature of 40ºC.

The unit shall be supplied complete with an insulated condensate drip tray and 21.5mm drain connection.

The unit shall be suitable for 125mm circular ducting.

The breakout noise level and power requirements shall be as detailed by the unit manufacturer and in accordance with the ventilation equipment schedule.

Units shall be MRXBOX95-WM2 or MRXBOX95AB-WM2 as manufactured by Nuaire and shall be listed on the SAP Appendix Q database.

CONTROL OPTIONS

All versions shall have the following functions integrally mounted within the fan unit on a purpose made PCB, all such components pre-wired and factory fitted by the manufacturer: -

- Independent control of background supply and extract flow rates.
- Independent control of boost speed supply and extract flow rates.
- Integral heat exchanger frost protection.
- Fan failure indication.
- Integral S/L terminal for boost from remote switch, e.g. light switch.
- Additional S/L terminal for 100% boost speed from remote switch, e.g. plate switch
- Discreet daily run monitor.
- Remote fail indicator (part number MRXBOX95LH-RFI)
- Indication and controls – The unit shall have clear LED visual indication for maintenance, servicing and operation mode, i.e. summer bypass, frost protection.

INTEGRAL AUTOMATIC SUMMER BYPASS – MRXBOX95AB-WM2

The bypass damper shall open automatically via a wax actuator, allowing the air to bypass the heat exchanger to deliver fresh filtered air during the warmer months.

Integral Humidity Sensor

The integral humidity sensor incorporated within the extract fan chamber will automatically boost both the extract and supply fan, to the commissioned boost speed, when the humidity level exceeds that set by the front panel mounted adjustment potentiometer.

MRXBOX-VSC (VISUAL SYSTEM CONTROLLER)

The MRXBOX-VSC is compatible with the Nuaire MRXBOX95(AB)-WM2 heat recovery units and can be purchased separately. The controller comes complete with commissioning and end user functions.

The display will be a 3.2" LCD display and will remain on standby until such time the screen is touched.

The initial display will show the MVHR system status as listed below:

- Current Fan Speed
- Current indoor/outside temperature (MRXBOX95AB units only)
- Indicate when the summer bypass is activated
- Indicate when frost protection is activated
- Indicate when the filters require cleaning/changing.

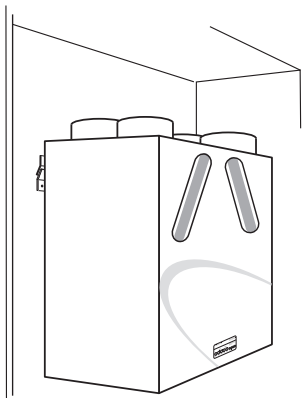
MRXBOX95AB-WH1 (with automatic summer bypass) & MRXBOX95-WH1

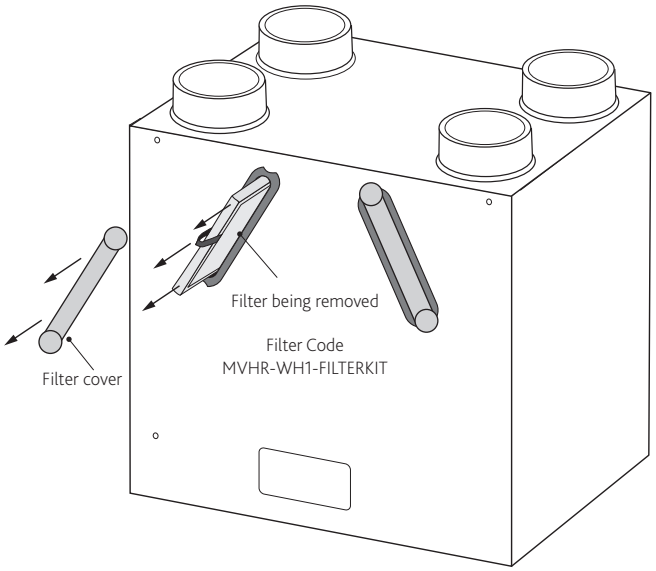
The MRXBOXB95AB-WH1 has been designed with automatic summer bypass and the facility to commission the supply and extract fans independently on both minimum and maximum speeds.

Both the MRXBOX95AB-WH1 and MRXBOX95-WH1 are designed to provide optimised balanced (supply and extract) mechanical ventilation with heat recovery. Tempered air is delivered into 'living areas' whilst extracting moisture laden air from 'wet' areas, creating comfortable well ventilated homes. The unit has the facility to commission the supply and extract fans independently on both minimum and maximum speeds. The heat exchanger block can recover up to 95% of the normally wasted heat. Both units are listed on the Product Characteristics Database.

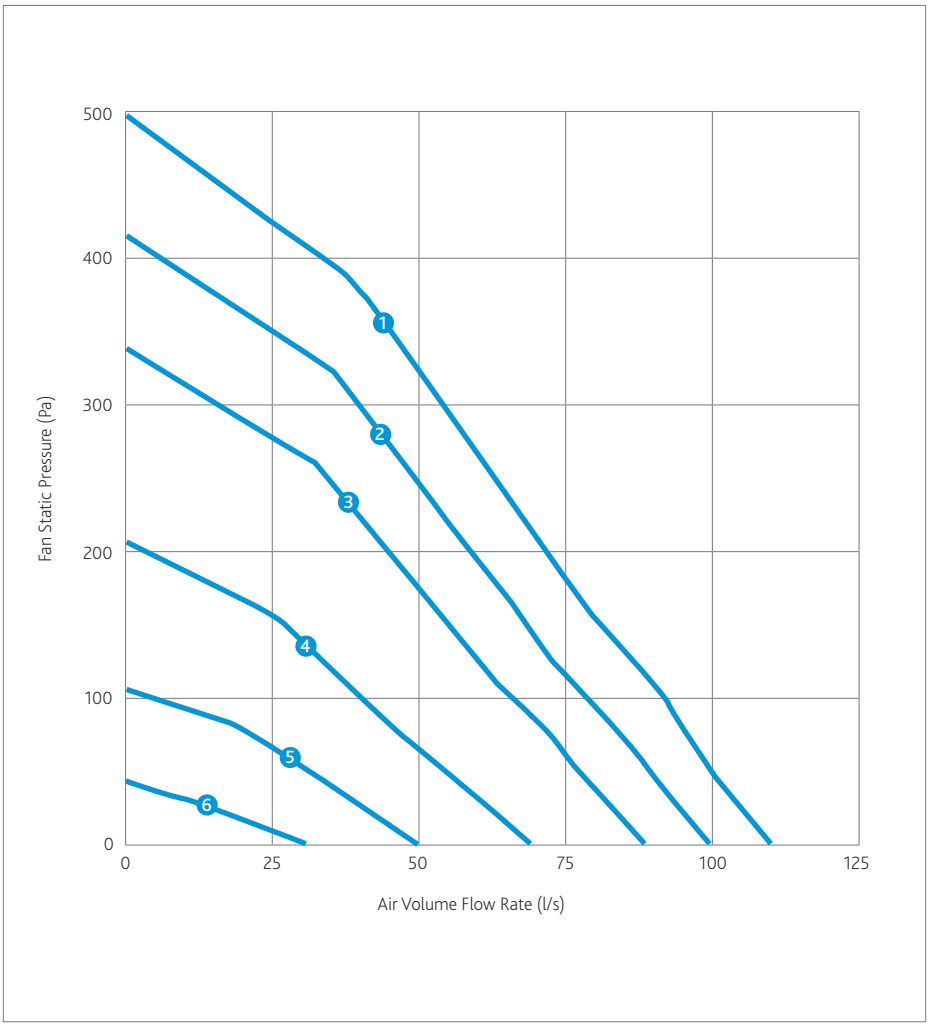
Typical Installation

INSTALLATION FEATURES





Performance - MRBOX95(AB)-WH1



CODE DESCRIPTION

MRXBOX95-WH1

1 2 3 4 5

1. Multi-room supply and extract heat recovery
2. Product range
3. Efficiency
4. Wall/cupboard application
5. High 1 Model

MRXBOX95AB-WH1

1 2 3 4 5 6

1. Multi-room supply and extract heat recovery
2. Product range
3. Efficiency
4. Automatic Summer Bypass
5. Wall/cupboard application
6. High 1 Model

Electrical & Sound

	Maximum power consumption		Sound Power Levels dB re 1pW								dBA @3m
Curve	(Watts)		63	125	250	500	1K	2K	4K	8K	Curve
1	150	Open inlet	48	51	58	49	47	39	25	<16	31
		Open Outlet	56	63	67	67	62	60	50	41	47
		Breakout	56	61	59	53	43	40	25	<16	33
2	114	Open inlet	48	50	57	48	45	37	23	<16	30
		Open Outlet	56	62	66	66	60	58	48	39	45
		Breakout	56	60	58	52	41	38	23	<16	32
3	75	Open inlet	47	50	56	46	43	35	21	<16	29
		Open Outlet	55	62	65	64	58	56	46	37	44
		Breakout	55	60	57	50	39	36	21	<16	31
4	36	Open inlet	46	48	53	43	37	29	<16	-	25
		Open Outlet	54	60	62	61	52	50	40	31	40
		Breakout	54	58	54	47	33	30	<16	<16	28
5	14	Open inlet	44	45	50	38	30	22	<16	<16	22
		Open Outlet	52	57	59	56	45	43	33	24	35
		Breakout	52	55	51	42	26	23	<16	<16	24
6	8	Open inlet	41	42	44	30	19	<16	<16	<16	<16
		Open Outlet	49	54	53	48	34	32	22	<16	27
		Breakout	49	52	45	34	<16	<16	<16	<16	19

The maximum power consumption shown above (Watts) is consumed on units running continuously, not taking into account any heat recovery saving and based on SAP Appendix Q testing.

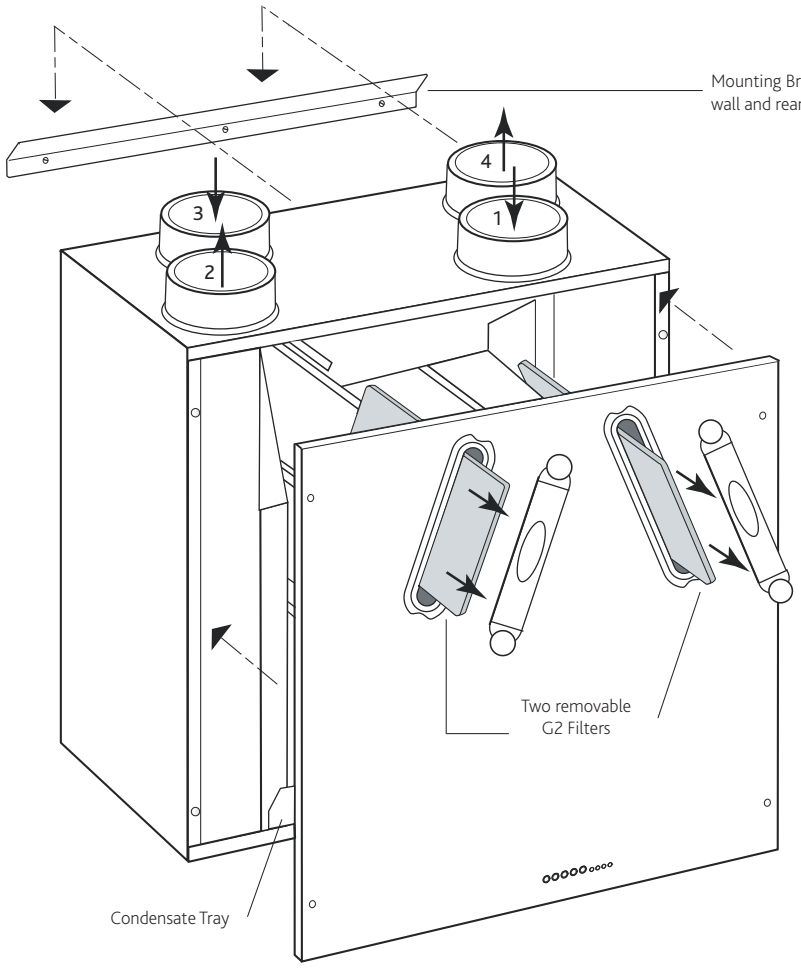
Sap Appendix Q Test Results

	MRXBOX95AB-WH1			MRXBOX95-WH1		
Application	Specific Fan Power (W/l/s)	Heat Exchange Efficiency	Energy Saving Trust Best Practice Compliant	Specific Fan Power (W/l/s)	Heat Exchange Efficiency	Energy Saving Trust Best Practice Compliant
Kitchen + 1 Wet Room	0.49	89%	Yes	0.41	91%	Yes
Kitchen + 2 Wet Room	0.47	88%	Yes	0.40	91%	Yes
Kitchen + 3 Wet Room	0.50	88%	Yes	0.46	90%	Yes
Kitchen + 4 Wet Room	0.57	88%	Yes	0.53	90%	Yes
Kitchen + 5 Wet Room	0.66	87%	Yes	0.62	89%	Yes
Kitchen + 6 Wet Room	0.76	86%	Yes	0.72	88%	Yes
Kitchen + 7 Wet Room	0.90	86%	Yes	0.83	87%	Yes

General Arrangement

SPIGOT LOCATION &
DUCTING REFERENCES

Spigot 1. 150mm dia. = extract air from dwelling.
Spigot 2. 150mm dia. = exhaust air to outside.
Spigot 3. 150mm dia. = intake air from outside.
Spigot 4. 150mm dia. = supply air to house.

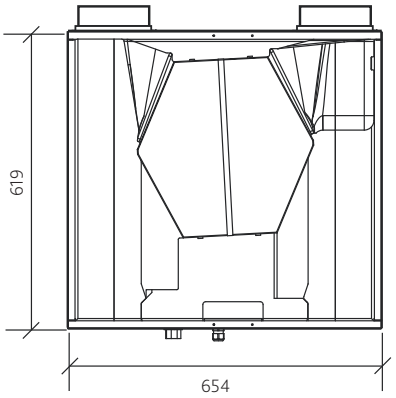


Technical - MRBOX95(AB)-WH1

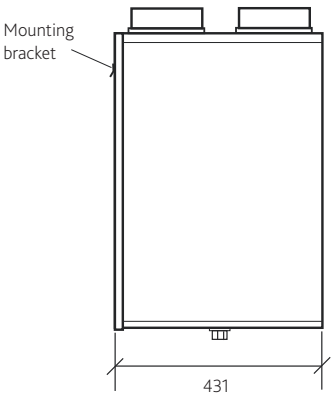
DIMENSIONS (MM)

Weight - 27kg

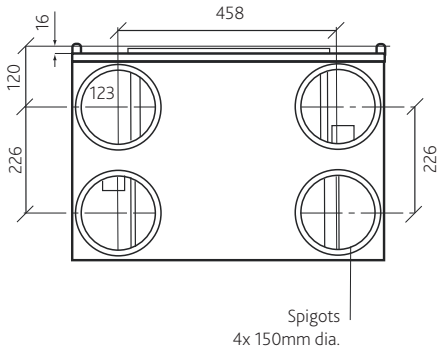
View from front with cover removed



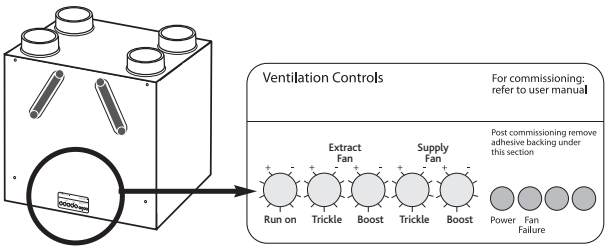
Side View



View from top



Detail of unit control on front panel.



Tamper proof label following commissioning, includes system status indication.

Electrical Details

Please note: the electrical connection of the unit must be carried out by a qualified electrician.

The unit is supplied with a flexible cord for connection to the mains supply.

NOTE: This unit must be earthed.

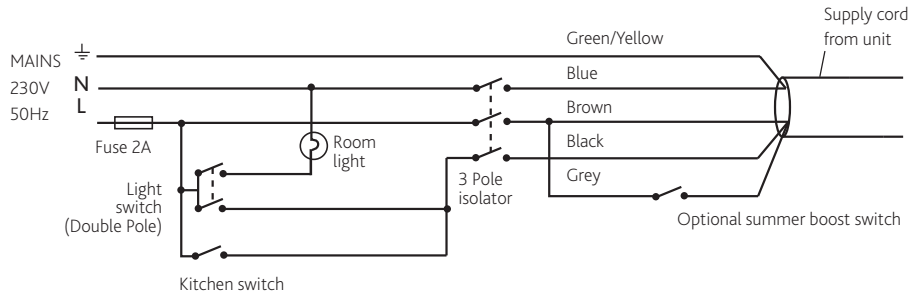
The mains power supply cable should be connected to a fixed wiring installation, via a fused isolator, in accordance with current IEE wiring regulations.

ELECTRICAL DETAILS: MRXBOX95-WH1	
Voltage:	230V 1ph 50Hz
Consumption:	WH1 - 1.3 Amp
Fuse rating:	3 Amp

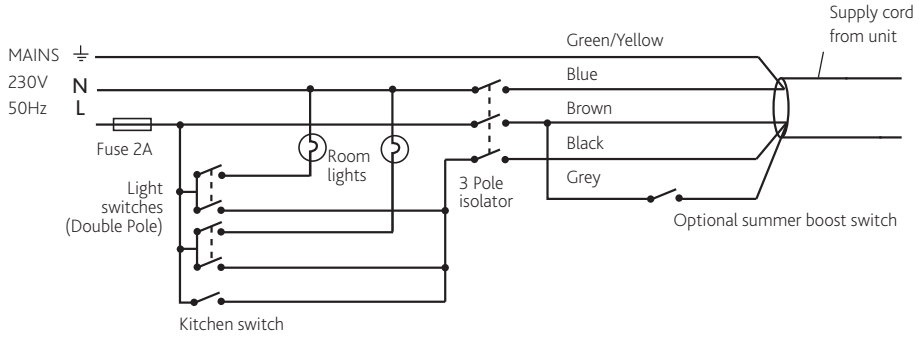
MRXBOX-VSC CONTROL SCREEN COMPATIBLE WITH THIS UNIT

Wiring - MRBOX95(AB)-WH1

UNIT SERVING KITCHEN & BATHROOM



UNIT SERVING KITCHEN & TWO BATHROOMS



Consultants Specification

OPERATION

The supply and extract system shall be positioned as indicated on the drawings and shall be in accordance with the particular fan schedule in the specification.

The combined supply and extract with heat recovery unit, shall supply filtered fresh air to each of the habitable rooms and vitiated air shall be extracted from all wet areas, e.g. bathroom, en suite, w.c, kitchen, utility rooms etc. The supply air shall be pre-heated by the warm extract air via the integrated counter-flow heat exchanger element. The extracted air shall also be filtered before it reaches the heat exchanger block.

The ventilation unit shall vary its speed and therefore the ventilation rate, as it receives signals from one of the following:

- Switched live signal from light/remote switches

When signals are received, the fan shall alter its speed to adjustable, normal and boost rates.

An adjustable run-on facility is integrated into the unit which allows the fans to run-on for between 1 and 60 minutes after the signals have been switched off.

The unit shall have the facility to commission the supply and extract fans independently on minimum speed (continuous background ventilation), and boost speed, via inbuilt minimum and maximum speed adjustment. The fans shall have infinitely variable speed control.

UNIT SPECIFICATION

The unit shall be fully insulated providing excellent thermal and acoustic characteristics and shall be complete with a multi plate counter flow high efficiency heat exchanger block, with a thermal efficiency of up to 95%. The heat exchanger shall be protected by G3 grade filters on fresh air inlet and system extract. The heat exchanger and filters shall be accessible via the front access panel, enabling quick and easy maintenance.

The unit shall have low energy, high efficiency EC fan/motor assemblies with sealed for life bearings, the impellers shall be backward curved centrifugal type. The motors shall be suitable of an ambient temperature of 40ºC.

The unit shall be supplied complete with an insulated condensate drip tray and 21.5mm drain connection.

The unit shall be suitable for 150mm circular ducting.

The breakout noise level and power requirements shall be as detailed by the unit manufacturer and in accordance with the ventilation equipment schedule.

Units shall be MRXBOX95-WH1 or MRXBOX95AB-WH1 as manufactured by Nuaire and shall be listed on the SAP Appendix Q database.

CONTROL OPTIONS

All versions shall have the following functions integrally mounted within the fan unit on a purpose made PCB, all such components pre-wired and factory fitted by the manufacturer: -

- Independent control of background supply and extract flow rates.
- Independent control of boost speed supply and extract flow rates.
- Integral heat exchanger frost protection.
- Fan failure indication.
- Integral S/L terminal for boost from remote switch, e.g. light switch.
- Additional S/L terminal for 100% boost speed from remote switch, e.g. plate switch
- Discreet daily run monitor.
- Remote fail indicator (part number MRXBOBX95LH-RFI)
- Indication and controls – The unit shall have clear LED visual indication for maintenance, servicing and operation mode, i.e. summer bypass, frost protection.

INTEGRAL AUTOMATIC SUMMER BYPASS MRXBOX95AB-WH1

The bypass damper shall open automatically via a wax actuator, allowing the air to bypass the heat exchanger to deliver fresh filtered air during the warmer months.

Integral Humidity Sensor

The integral humidity sensor incorporated within the extract fan chamber will automatically boost both the extract and supply fan, to the commissioned boost speed, when the humidity level exceeds that set by the front panel mounted adjustment potentiometer.

MRXBOX-VSC (VISUAL SYSTEM CONTROLLER)

The MRXBOX-VSC is compatible with the Nuaire MRXBOX95(AB)-WH1 heat recovery units and can be purchased separately. The controller comes complete with commissioning and end user functions.

The display will be a 3.2" LCD display and will remain on standby until such time the screen is touched.

The initial display will show the MVHR system status as listed below:

- Current Fan Speed
- Current indoor/outside temperature (MRXBOX95AB units only)
- Indicate when the summer bypass is activated
- Indicate when frost protection is activated
- Indicate when the filters require cleaning/changing.

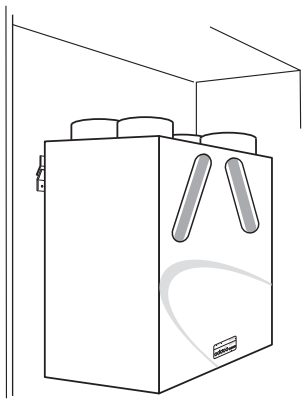
MRXBOX95AB-WH2 (with automatic summer bypass)

MRXBOX95AB-WH2 is designed to provide optimised balanced (supply and extract) mechanical ventilation with heat recovery.

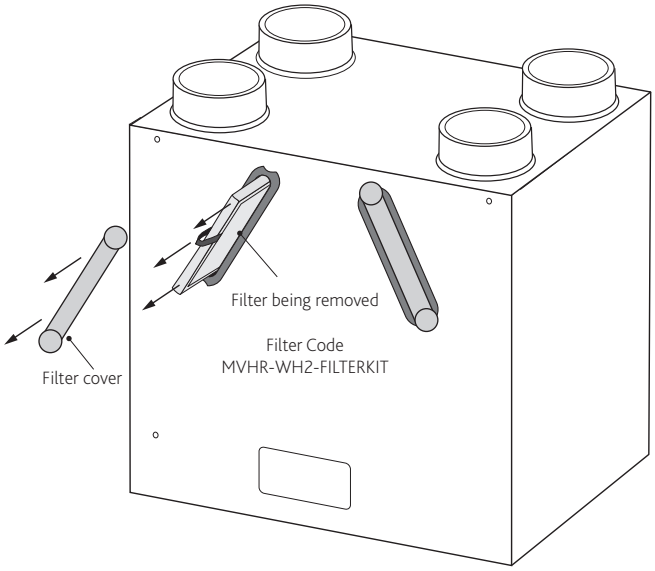
Tempered air is delivered into 'living' areas whilst extracting moisture laden air from 'wet' areas, creating comfortable well-ventilated homes. The unit has been designed with automatic summer bypass and the facility to commission the supply & extract fans independently on both minimum and maximum speeds. This unit is listed on the Product Characteristics Database.

Typical Installation

INSTALLATION FEATURES

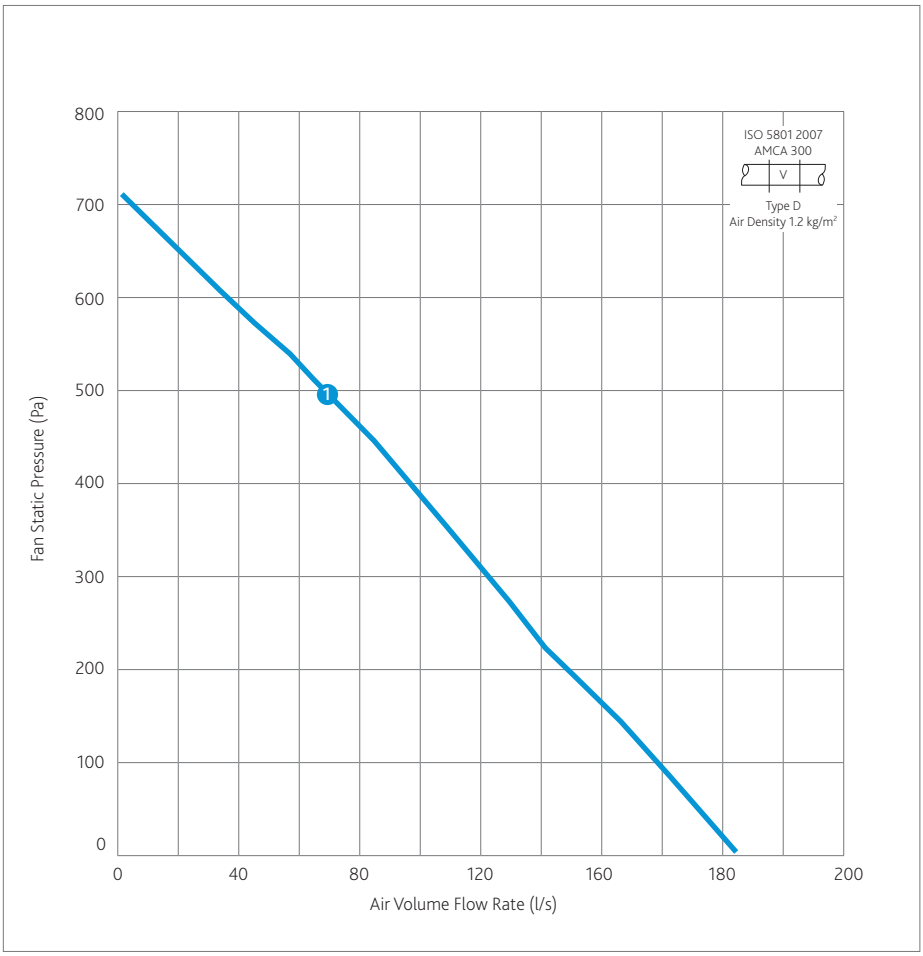


Typical cupboard installation of MRXBOX95AB-WH2



MRXBOX-VSC CONTROL SCREEN COMPATIBLE WITH THIS UNIT

Performance - MRXBOX95AB-WH2



CODE DESCRIPTION

MRXBOX95AB-WH2

1 2 3 4 5 6

1. Multi-room supply and extract heat recovery
2. Product range
3. Efficiency
4. Automatic Summer Bypass
5. Wall/cupboard application
6. High 2 Model

Sap Appendix Q Test Results

	MRXBOX95AB-WH2		
Application	Specific Fan Power (W/l/s)	Heat Exchange Efficiency	Energy Saving Trust Best Practice Compliant
Kitchen + 1 Wet Room	0.60	89%	Yes
Kitchen + 2 Wet Room	0.56	89%	Yes
Kitchen + 3 Wet Room	0.56	89%	Yes
Kitchen + 4 Wet Room	0.61	88%	Yes
Kitchen + 5 Wet Room	0.67	87%	Yes
Kitchen + 6 Wet Room	0.76	87%	Yes
Kitchen + 7 Wet Room	0.90	86%	Yes

Electrical & Sound

	Maximum power consumption		Sound Power Levels dB re 1pW								dBA @3m
Curve	(Watts)		63	125	250	500	1K	2K	4K	8K	Curve
1	337	Open inlet	58	56	57	63	57	51	46	45	61
		Open Outlet	67	63	65	75	68	63	56	53	
		Breakout	61	61	60	63	53	48	40	35	

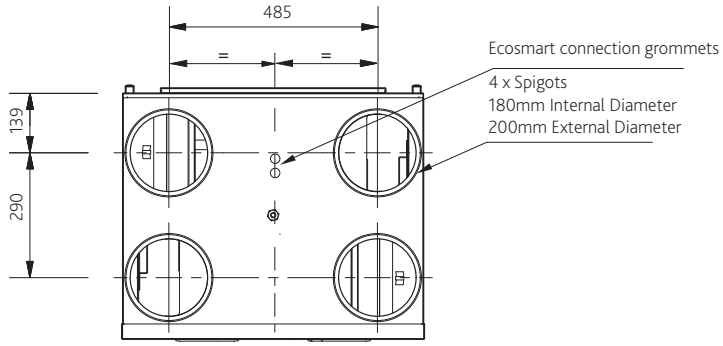
Above noise measured at stated percent of maximum working pressure..

Technical - MRXBOX95AB-WH2

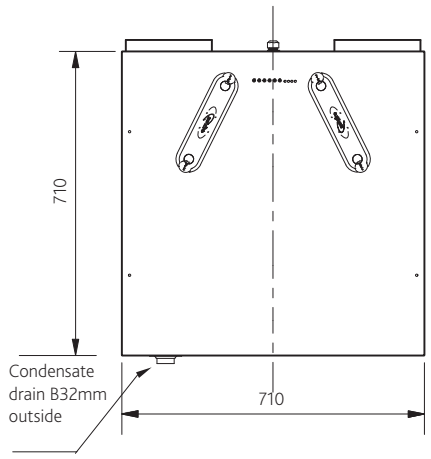
DIMENSIONS (MM)

Weight - 44Kg

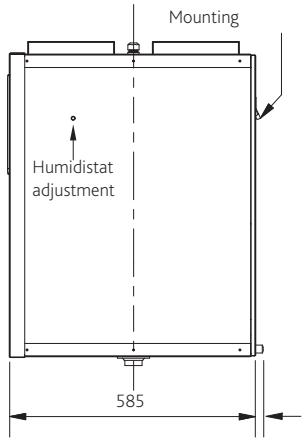
View from top



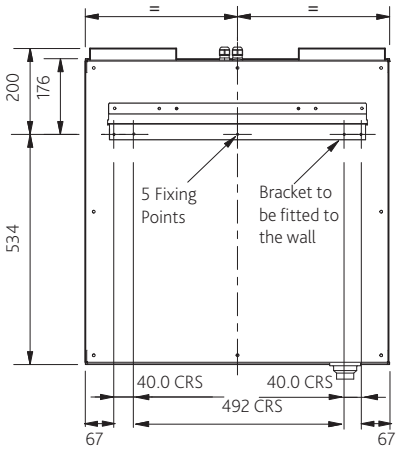
Front view



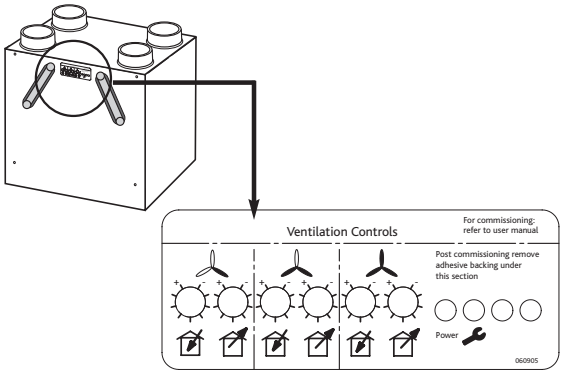
Side view



Dimensions: Unit wall mounting bracket position
(Viewed from back)



Detail of unit control on front panel.



Tamper proof label following commissioning, includes system status indication.

Electrical Details - MRXBOX95AB-WH2

Please note: the electrical connection of the unit must be carried out by a qualified electrician.

The unit is supplied with a flexible cord for connection to the mains supply.

NOTE: In the event of 1kV transients the fans may stop running, normal operation will be resumed when the interference has ceased.

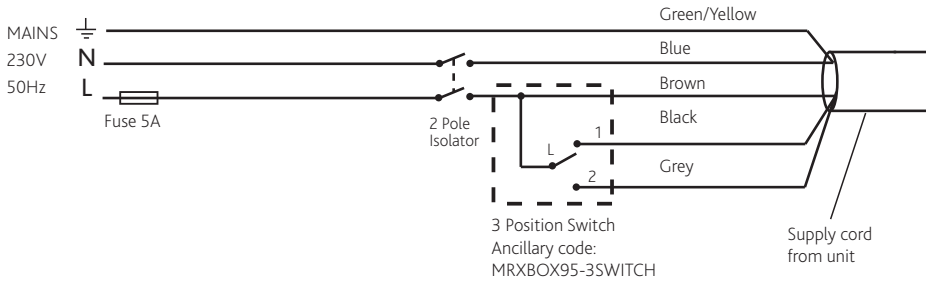
The mains power supply cable should be connected to a fixed wiring installation, via a fused isolator, in accordance with current IEE wiring regulations.

ELECTRICAL DETAILS: MRXBOX95 - WH2	
Voltage:	230V 1ph 50Hz
Consumption:	2.5 Amp
Fuse rating:	5 Amp

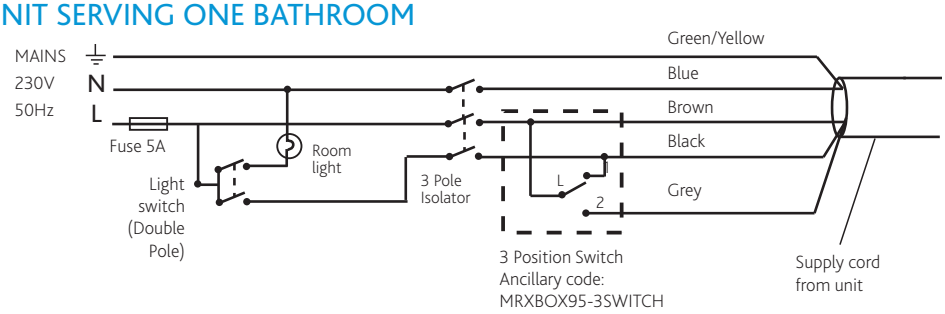
Wiring

Note: Wiring is for reference purposes only as the connections are factory fitted. The unit is pre-wired with a 2 metre fly lead.

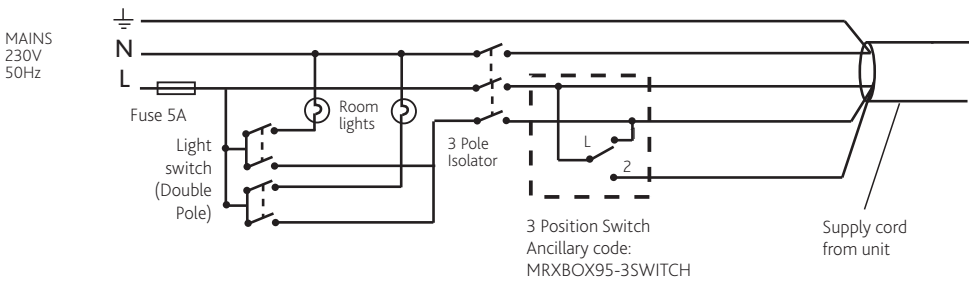
UNIT SERVING KITCHEN & BATHROOM



UNIT SERVING ONE BATHROOM



UNIT SERVING TWO BATHROOMS



Consultants Specification

OPERATION

The supply and extract ventilation unit shall be positioned as indicated on the drawings and shall be in accordance with the particular fan schedule in the specification.

The combined supply and extract with heat recovery unit, shall supply filtered fresh air to each of the habitable rooms and vitiated air shall be extracted from the wet areas e.g. bathroom, en-suite, w.c, kitchen, utility rooms, etc. The supply air shall be pre-heated by the warm extract air via the integrated counter-flow heat exchanger element.

The extracted air shall also be filtered before it reaches the heat exchanger block. The ventilation unit shall vary its speed and therefore the ventilation rate, as it receives signals from one of the following:

- Switched live signal from light / remote switches.

When signals are received, the fan shall alter its speed to adjustable, normal and boost rates.

The unit shall have the facility to commission the supply and extract fans independently on minimum speed (continuous background ventilation), boost speed, via inbuilt minimum and maximum speed adjustment. The fans shall have infinitely variable speed control.

MRXBOX95AB-WH2 - SPECIFICATION

The unit shall be fully insulated providing excellent thermal and acoustic characteristics and shall be complete with a multi plate counter flow high efficiency heat exchanger block, with a thermal efficiency of up to 95%. The heat exchanger shall be protected by G3 grade filters on fresh air inlet and system extract.

The heat exchanger and filters shall be accessible via the front access panel, enabling quick and easy maintenance.

The unit shall have low energy, high efficiency EC fan/motor assemblies with sealed for life bearings, the impellers shall be backward curved centrifugal type.

The motors shall be suitable of an ambient temperature of 40°C.

The unit shall be supplied complete with a condensate drip tray and 32mm drain connection.

The unit shall be suitable for 180 and 200mm diameter circular ducting.

The breakout noise level and power requirements shall be as detailed by the unit manufacturer and in accordance with the ventilation equipment schedule.

Units shall be MRXBOX95AB-WH2 as manufactured by Nuaire.

INTEGRAL AUTOMATIC SUMMER BYPASS

The bypass damper shall open automatically via a wax actuator allowing the air to bypass the heat exchanger to deliver fresh filtered air during the warmer months.

INTEGRAL HUMIDITY SENSOR

The integral humidity sensor incorporated within the extract fan chamber will automatically boost both the extract and supply fan, to the commissioned boost speed, when the humidity level exceeds that set by the side panel mounted adjustment potentiometer.

OPTIONAL REMOTE SWITCH (MRXBOX95-3 SWITCH)

The unit shall have the facility to wire a three position remote switch to a suitable location within the property. The switch shall have 3 settings, trickle, boost and summertime boost facility. The remote switch will act as the master switch and will override all other switches.

CONTROL OPTIONS

All versions shall have the following functions integrally mounted within the fan unit on a purpose made PCB, all such components pre-wired and factory fitted by the manufacturer:

- Independent control of background supply and extract flow rates.
- Independent control of boost speed supply and extract flow rates.
- Integral fan failure indication.
- Integral S/L terminal for boost to commissioned level, from remote switch, e.g. light switch.
- Integral S/L terminal for summertime boost speed, from remote switch e.g. plate switch.
- Integral heat exchanger frost protection.
- Discreet daily run monitor.
- Remote fail indicator (Part number-MRXBOX95LH-RFI).
- Indication and controls - The unit shall have clear LED visual indication for maintenance, servicing and operation mode i.e. summer bypass, frost protection.

The unit shall be offered with a 5 year warranty.

The manufacturer's recommendations should be observed at all times. The unit shall be the MRXBOX95AB-WH2 and shall be manufactured by Nuaire.

MRXBOX-VSC (VISUAL SYSTEM CONTROLLER)

The MRXBOX-VSC is compatible with the Nuaire MRXBOX95AB-WH2 heat recovery unit and can be purchased separately. The controller comes complete with commissioning and end user functions.

The display will be a 3.2" LCD display and will remain on standby until such time the screen is touched.

The initial display will show the MVHR system status as listed below:

- Current Fan Speed
- Current indoor/outside temperature
- Indicate when the summer bypass is activated
- Indicate when frost protection is activated
- Indicate when the filters require cleaning/changing.

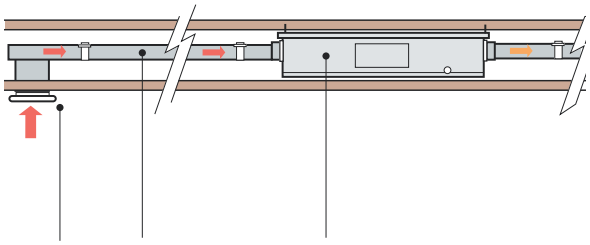
MRXBOX95B-LP1 (with automatic summer bypass)

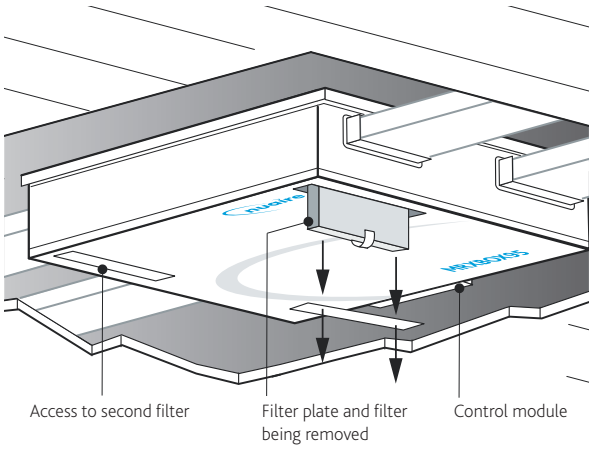
MRXBOX95B-LP1 is specifically designed for apartment applications where space is a premium.

The MVHR unit provides optimised balanced (supply & extract) mechanical ventilation with heat recovery. Tempered air is delivered into 'living' areas whilst extracting moisture laden air from 'wet' areas, creating comfortable well-ventilated homes. The unit has a facility to commission the supply & extract fans independently on both minimum and maximum speeds. This unit is listed on the Product Characteristics Database.

Typical Installation

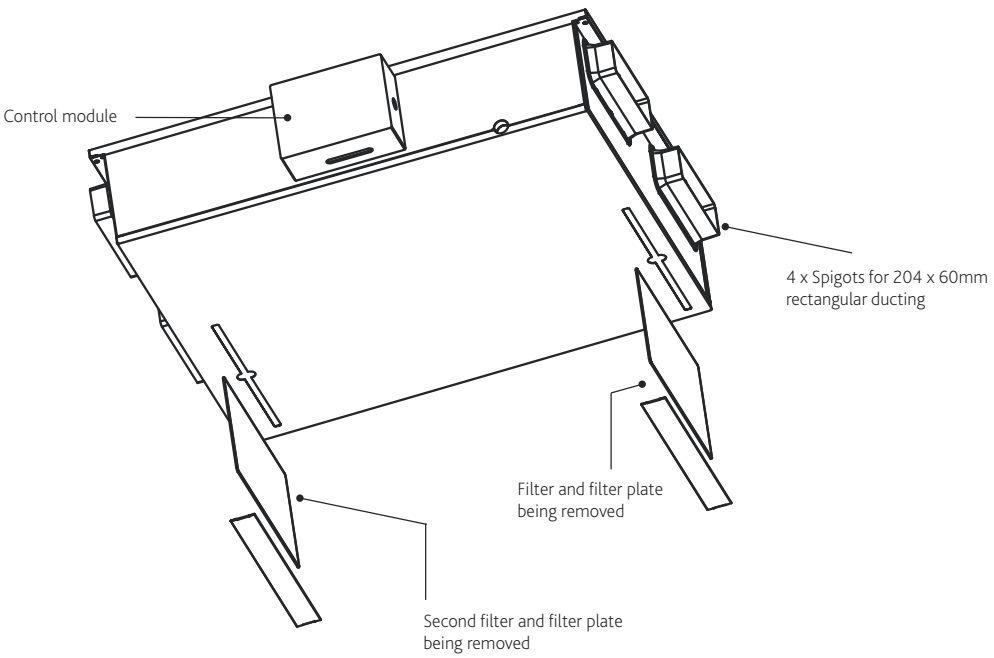
INSTALLATION FEATURES



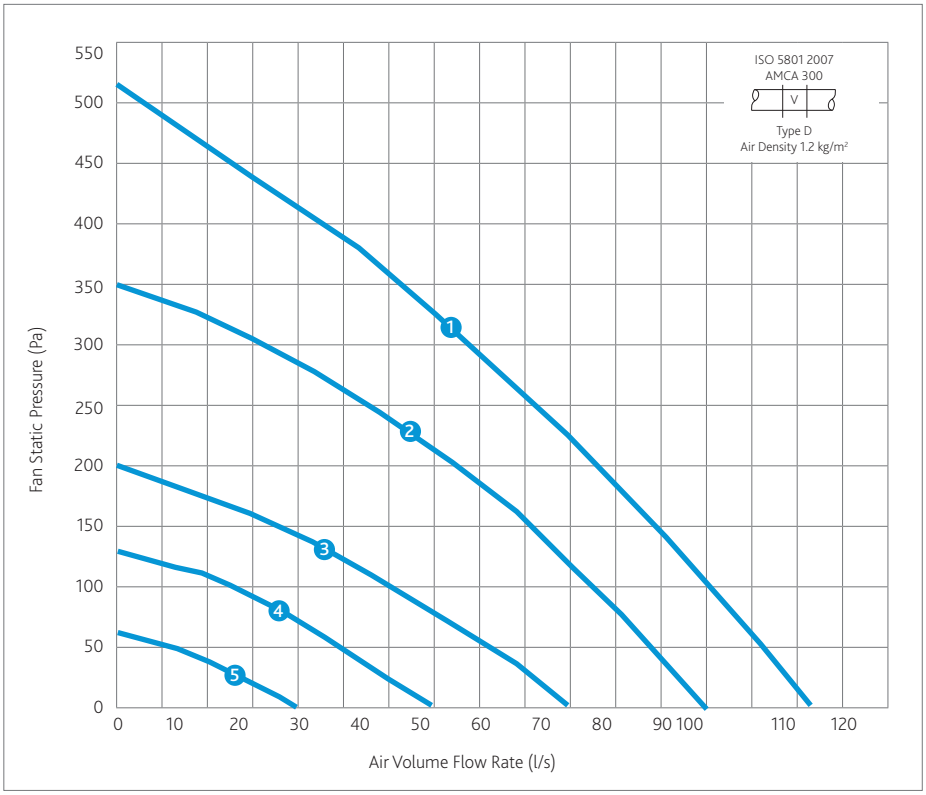


General Arrangement

MRXBOX95B-LP1


Control module
4 x Spigots for 204 x 60mm rectangular ducting
Filter and filter plate being removed
Second filter and filter plate being removed

Performance - MRXBOX95B-LP1



CODE DESCRIPTION

MRXBOX95B-LP1

1 2 3 4 5

1. Multi-room supply and extract heat recovery
2. Product range
3. Efficiency
4. Automatic Bypass
5. Low profile

Sap Appendix Q Test Results

	MRXBOX95B-LP1		
Exhaust terminal Configuration	Fan speed setting	Specific Fan Power (W/l/s)	Heat Exchange Efficiency
Kitchen + 1 Wet Room	100% variable	0.54	75%
Kitchen + 2 Wet Room	100% variable	0.60	76%
Kitchen + 3 Wet Room	100% variable	0.69	77%
Kitchen + 4 Wet Room	100% variable	0.79	78%
Kitchen + 5 Wet Room	100% variable	0.85	78%
Kitchen + 6 Wet Room	100% variable	1.14	79%

Electrical & Sound

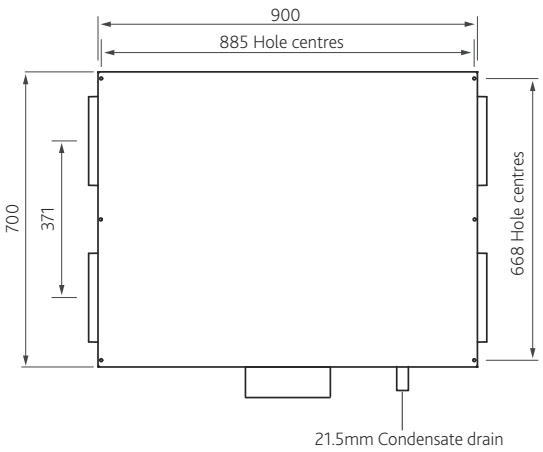
	Maximum power consumption		Sound Power Levels dB re 1pW								dBA @3m
Curve	(Watts)		63	125	250	500	1K	2K	4K	8K	Curve
1	100	Open inlet Open Outlet Breakout	50 57 64	56 67 64	55 68 63	55 69 62	46 67 52	42 65 47	32 56 38	23 48 30	43
2	85	Open inlet Open Outlet Breakout	50 56 62	52 63 62	55 65 61	51 65 57	43 63 48	39 59 43	27 51 32	17 42 20	40
3	65	Open inlet Open Outlet Breakout	45 52 57	47 57 56	48 58 54	44 58 49	35 56 41	30 53 33	20 42 23	9 32 -	33
4	45	Open inlet Open Outlet Breakout	39 46 50	42 50 49	37 49 44	34 49 39	26 46 29	19 44 19	12 30 14	- 21 -	23
5	26	Open inlet Open Outlet Breakout	36 39 42	36 43 40	26 37 33	24 38 27	17 35 14	14 28 -	- 17 -	- 10 -	12

The maximum power consumption shown above (Watts) is consumed on units running continuously, not taking into account any heat recovery saving based on SAP Appendix Q testing. Please note step curves shown are for information purposes only and are not individual units. The units actual duty range is infinitely variable.

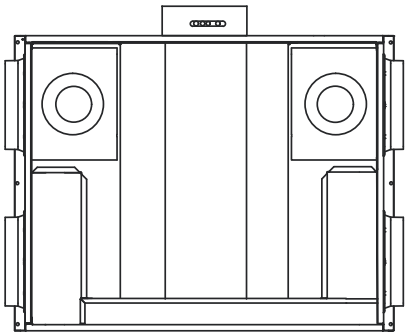
Technical - MRXBOX95B-LP1

DIMENSIONS (MM)

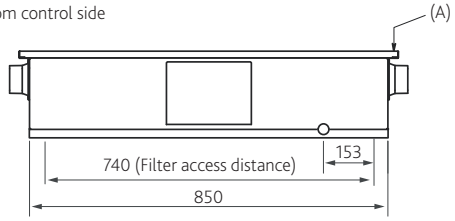
Weight - 37kg



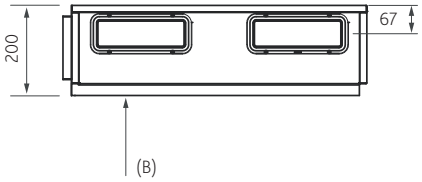
View from underside with lid removed (B)



View from control side



End view



Electrical Details

Please note: the electrical connection of the unit must be carried out by a qualified electrician.

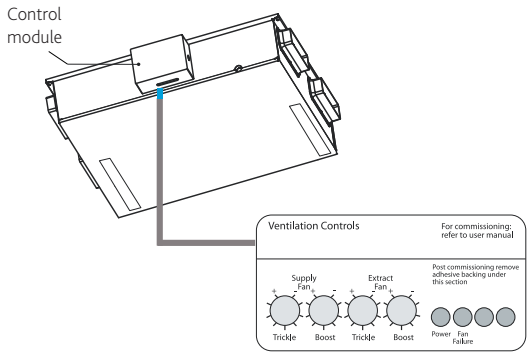
The unit is supplied with a flexible cord for connection to the mains supply.

NOTE: This unit must be earthed.

The three core cable from the mains power supply should be connected to a fixed wiring installation, via a fused isolator, in accordance with current IEE wiring regulations.

ELECTRICAL DETAILS: MRXBOX95B - LP1	
Voltage:	230V 1ph 50Hz
Consumption:	LP1 - 2.5 Amp
Fuse rating:	3 Amp

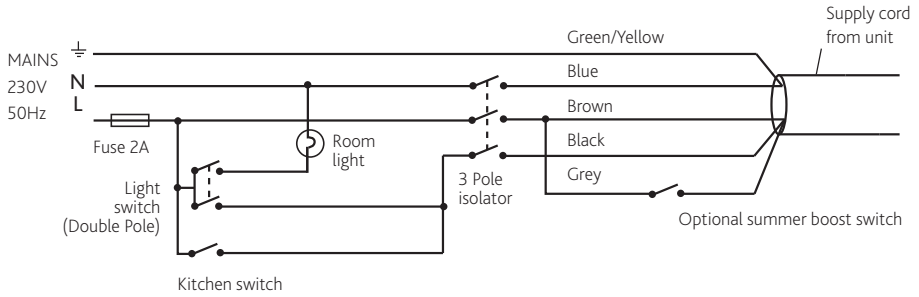
Detail of unit control on control panel.



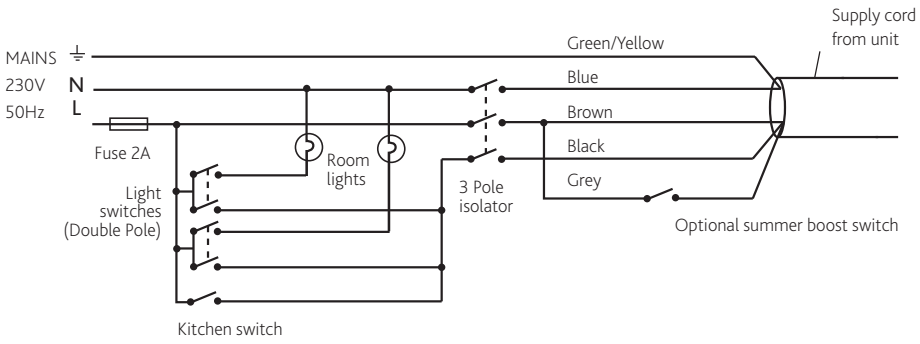
Tamper proof label following commissioning, includes system status indication.

Wiring MRXBOX95B-LP1

UNIT SERVING KITCHEN & BATHROOM



UNIT SERVING KITCHEN & TWO BATHROOMS



Consultants Specification

OPERATION

The supply and extract ventilation unit shall be positioned as indicated on the drawings and shall be in accordance with the particular fan schedule in the specification.

The combined supply and extract with heat recovery unit, shall supply filtered fresh air to each of the habitable rooms and vitiated air shall be extracted from the wet areas e.g. bathroom, en-suite, w.c, kitchen, utility rooms, etc. The supply air shall be pre-heated by the warm extract air via the integrated counter-flow heat exchanger element.

The extracted air shall also be filtered before it reaches the heat exchanger block. The ventilation unit shall vary its speed and therefore the ventilation rate, as it receives signals from one of the following:

- Switched live signal from light / remote switches.

When signals are received, the fan shall alter its speed to adjustable, normal and boost rates.

The unit shall have the facility to commission the supply and extract fans independently on minimum speed (continuous background ventilation), and boost speed, via inbuilt minimum and maximum speed adjustment. The fans shall have infinitely variable speed control.

SPECIFICATION

The unit shall be manufactured from galvanised sheet steel with a white, pre-painted removable access panel. The unit shall be fully insulated providing excellent thermal and acoustic characteristics and shall be complete with a multi plate, aluminium, counter flow high efficiency heat exchanger block, with a thermal efficiency of up to 80%. The heat exchanger shall be protected by G3 grade filters on fresh air inlet and system extract. The heat exchanger and filters shall be accessible via the underside access panels, enabling quick and easy maintenance.

The unit shall have a maximum depth of 200mm to fit within ceiling void restrictions. The unit shall have low energy, high efficiency EC fan/motor assemblies with sealed for life bearings, the impellers shall be backward curved centrifugal type.

The motors shall be suitable of an ambient temperature of 40°C.

Motor assemblies shall be removable from the underside of the unit and will not require the unit to be removed from situ.

The unit shall be supplied complete with a condensate drip tray and 21.5mm drain connection.

The unit shall be suitable for 204x60mm rectangular ducting. The breakout noise level and power requirements shall be as detailed by the unit manufacturer and in accordance with the ventilation equipment schedule.

INTEGRAL AUTOMATIC SUMMER BYPASS

Unit shall be MRXBOX95B-LP1 as manufactured by Nuaire.
The unit shall be fitted with 100% summer bypass as standard.
The bypass opens automatically when outside temperature exceeds 20ºC. This shall open the damper via an actuator. Outside air supplied through the bypass shall be filtered, so the air quality is optimal, irrespective of the bypass setting (open or closed).

The unit shall be offered with a 5 year warranty.

STD CONTROLS

The unit shall have the following functions integrally mounted within the fan unit on a purpose made PCB, all such components pre-wired and factory fitted by the manufacturer:

- Independent control of background supply and extract flow rates.
- Independent control of boost speed supply and extract flow rates.
- Integral fan failure indication.
- Integral S/L terminal for boost to commissioned level, from remote switch, e.g. light switch.
- Additional S/L terminal for 100% boost speed, from remote switch e.g. plate switch.
- Integral heat exchanger frost protection.
- Discreet daily run monitor.

OPTIONAL CONTROLS/SENSORS

773532	- Normal/boost switch.
HUMISEN	- 230V Humidistat.
230-PIR	- PIR Sensor with run-on timer.

OPTIONAL ECOSMART SENSORS/ANCILLARIES

MRXBOX95-PIR	- boost by Passive Infra Red.
MRXBOX95-HUM	- boost by Humidistat.
MRXBOX95-RFI	- Remote fail indicator.

MRXBOX95-LH1 & MRXBOX95-LH2

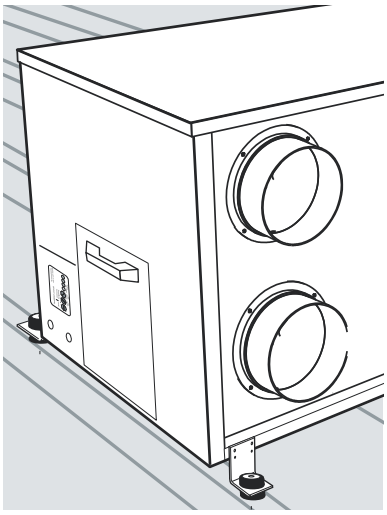
MRXBOX95-LH1 and MRXBOX95-LH2 are designed to provide optimised balanced (supply and extract) mechanical ventilation with heat recovery.

Tempered air is delivered into 'living' areas whilst extracting moisture laden air from 'wet' areas, creating comfortable well-ventilated homes. The unit has the facility to commission the supply and extract fans independently on minimum speed (continuous background ventilation), boost control will control both fans to the same volume. The heat exchanger block can recover up to 95% of the normally wasted heat. Both units are listed on the Product Characteristics Database.

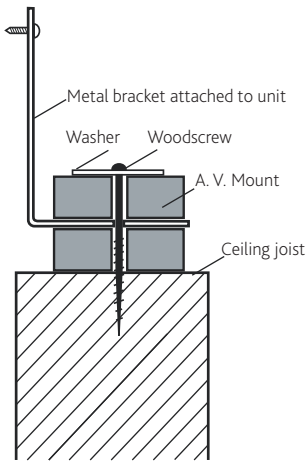
MRXBOX-VSC CONTROL SCREEN COMPATIBLE WITH MRXBOX95-LH2

Typical Installation

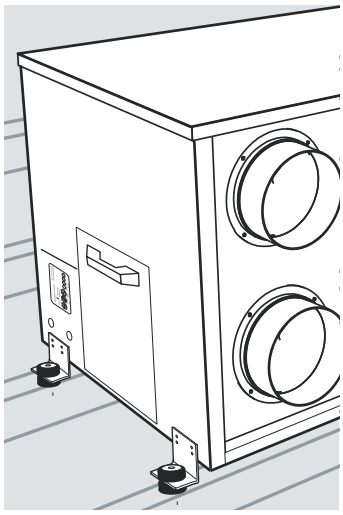
FLEXIBLE LOFT MOUNTING OPTIONS



Option 1
Mounted on roof joists using four "L" shape metal brackets and AV mounts on long sides of unit.



Side view example of an 'L' shaped fixing bracket and AV mount attached to ceiling joist.

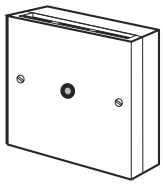


Option 2
Mounted on roof joists using four "L" shape metal brackets and AV mounts on short sides of unit.

ACCESSORIES

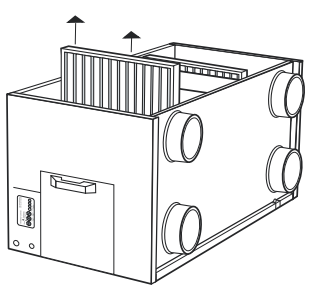
OPTIONAL REMOTE FAIL INDICATOR

MRXBOX95LH-RFI is connected to the fan unit via low voltage wiring.



REMOVABLE G4 FILTERS

Filter Code
777674

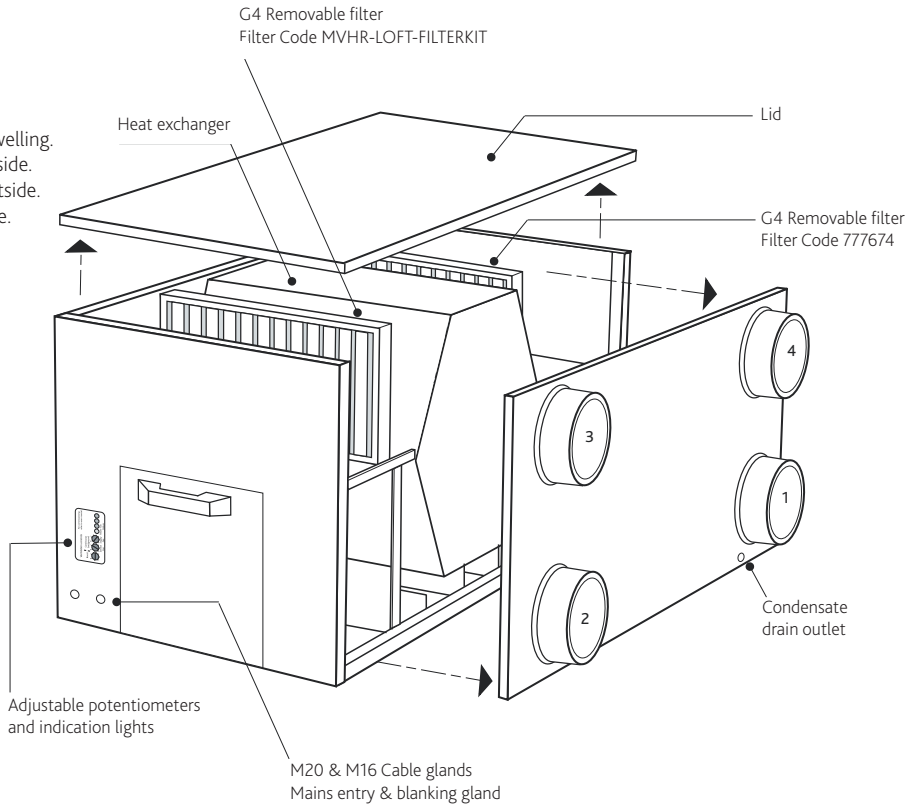


Technical - MRXBOX95-LH1/2

UNIT COMPONENTS

SPIGOT LOCATION & DUCTING REFERENCES

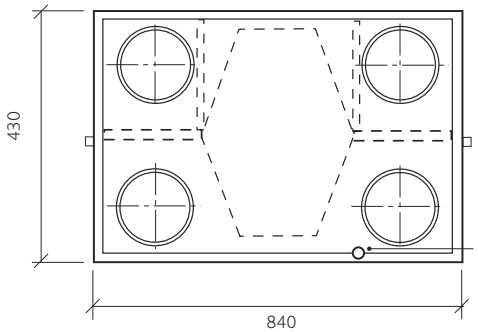
Spigot 1. 125mm dia. = extract air from dwelling.
Spigot 2. 125mm dia. = exhaust air to outside.
Spigot 3. 125mm dia. = intake air from outside.
Spigot 4. 125mm dia. = supply air to house.



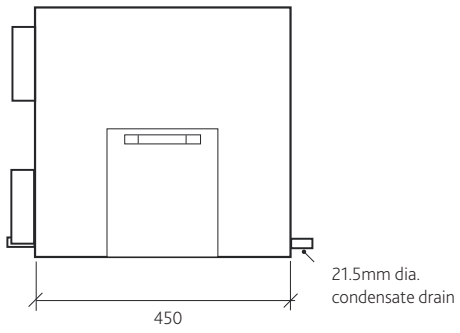
DIMENSIONS (MM)

Weight - 21Kg

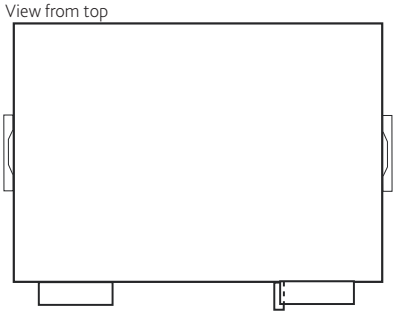
View from front 4x 125mm spigots



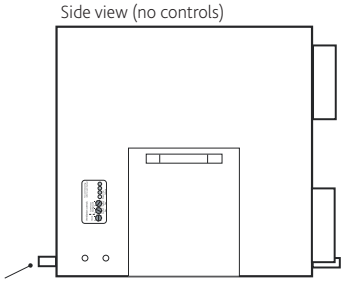
Side view (no controls)



View from top



Side view (no controls)

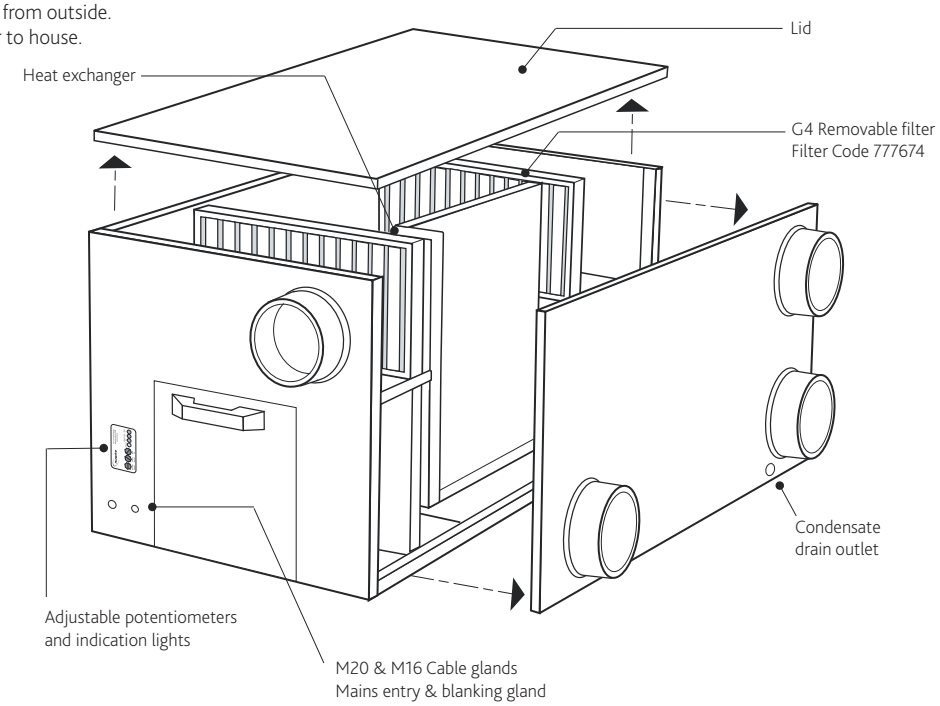


General Arrangement - MRXBOX95-LH1/2

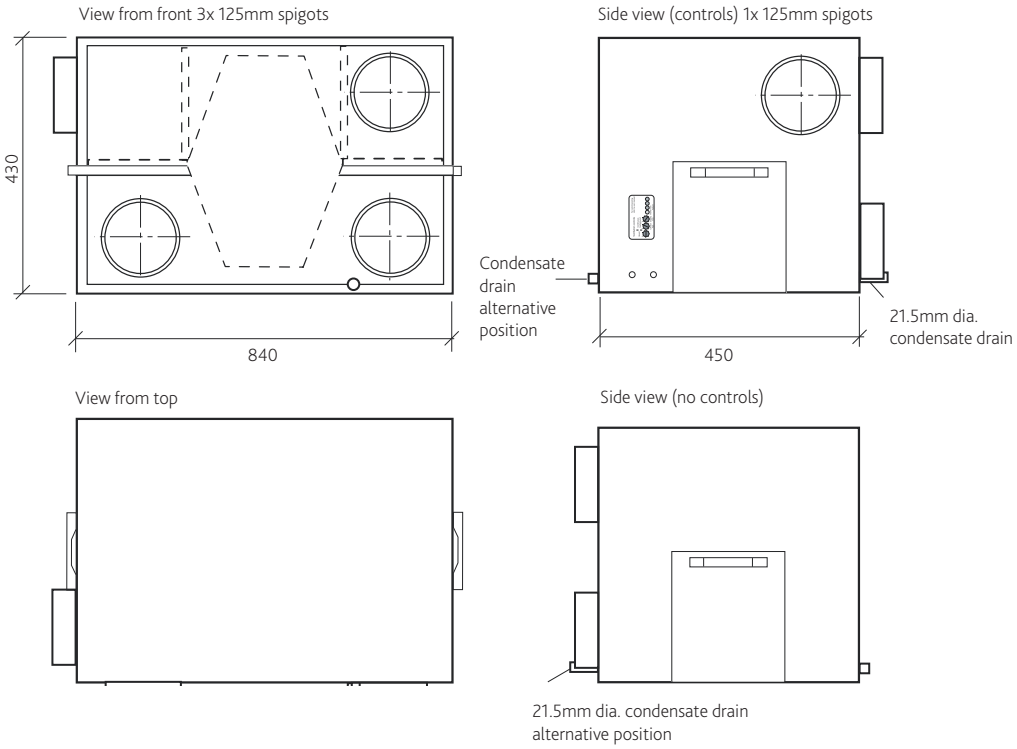
OPTIONAL SUMMER BYPASS

SPIGOT LOCATION &
DUCTING REFERENCES

Spigot 1. 125mm dia. = extract air from dwelling.
Spigot 2. 125mm dia. = exhaust air to outside.
Spigot 3. 125mm dia. = intake air from outside.
Spigot 4. 125mm dia. = supply air to house.



DIMENSIONS (MM)



Electrical Details - MRXBOX95-LH1/2

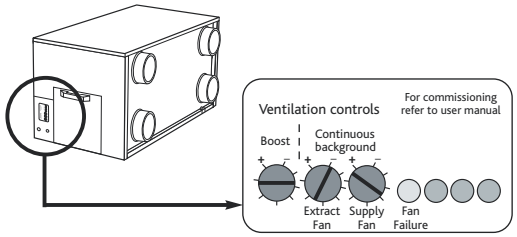
Please note: the electrical connection of the unit must be carried out by a qualified electrician.

The unit is supplied with a flexible cord for connection to the mains supply.

NOTE: This unit must be earthed.

The mains power supply cable should be connected to a fixed wiring installation, via a fused isolator, in accordance with current IEE wiring regulations.

Detail of unit control on front panel.

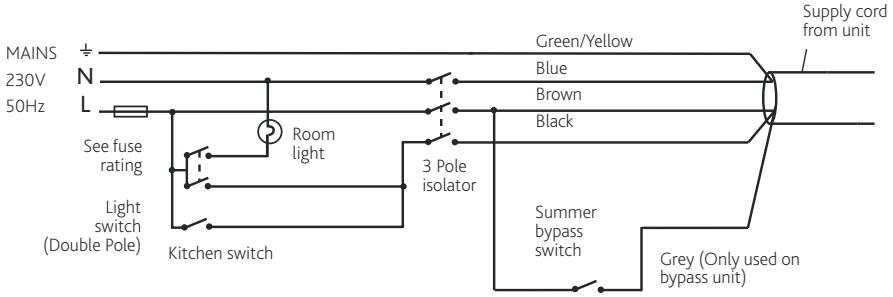


ELECTRICAL DETAILS: MRXBOX95 - LH1	
Voltage:	230V 1ph 50Hz
Consumption:	LH1 - 1.3 Amp
Fuse rating:	LH1 - 3 Amp

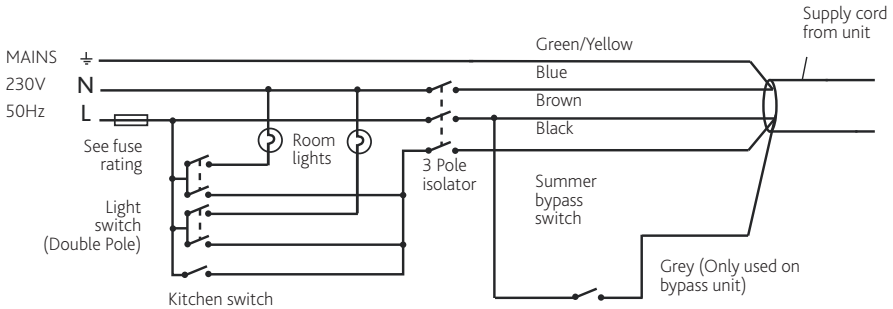
ELECTRICAL DETAILS: MRXBOX95 - LH2	
Voltage:	230V 1ph 50Hz
Consumption:	LH2 - 2.2 Amp
Fuse rating:	LH2 - 53 Amp

Wiring

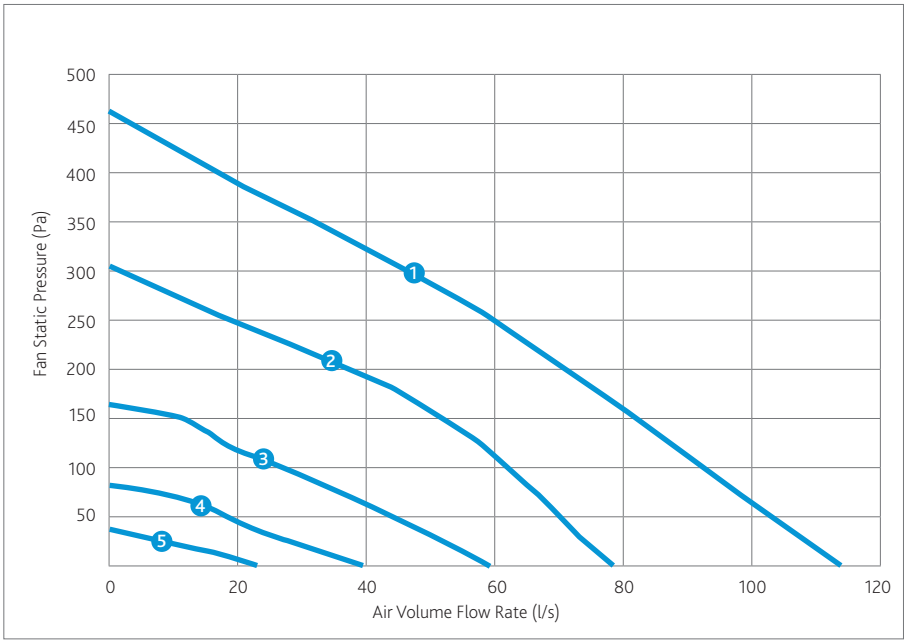
UNIT SERVING KITCHEN & BATHROOM



UNIT SERVING KITCHEN & TWO BATHROOMS



Performance - MRXBOX95-LH1



CODE DESCRIPTION

MRXBOX95-LH1

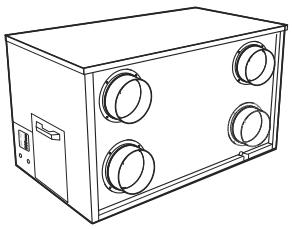
1 2 3 4 5

1. Multi-room supply and extract heat recovery
2. Product range
3. Efficiency
4. Loft application
5. H1 = High 1 Model

Sap Appendix Q Test Results

	MRXBOX95-LH1		
Application	Specific Fan Power (W/l/s)	Heat Exchange Efficiency	Energy Saving Trust Best Practice Compliant
Kitchen + 1 Wet Room	0.61	91%	Yes
Kitchen + 2 Wet Room	0.59	91%	Yes
Kitchen + 3 Wet Room	0.62	91%	Yes
Kitchen + 4 Wet Room	0.71	91%	Yes
Kitchen + 5 Wet Room	0.78	91%	Yes
Kitchen + 6 Wet Room	0.92	90%	Yes

Casing

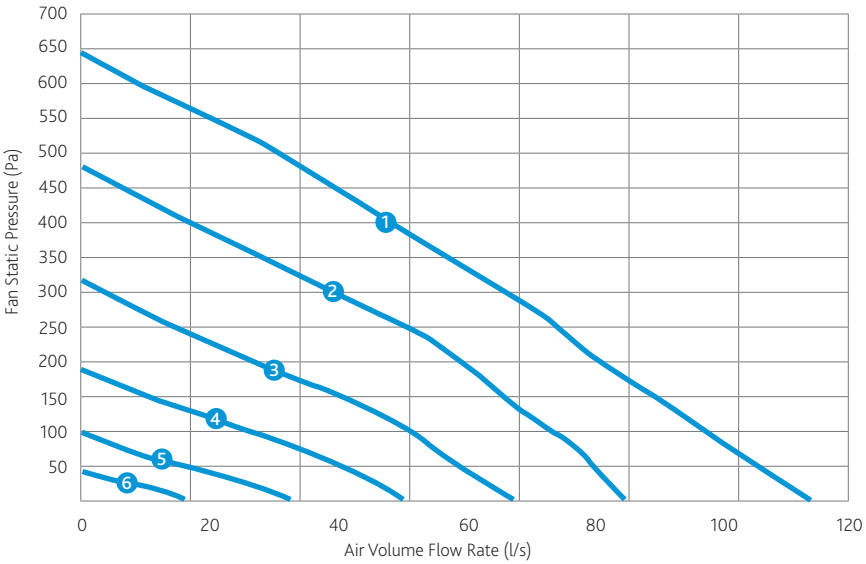


Electrical & Sound

	Maximum power consumption		Sound Power Levels dB re 1pW								dBA @3m
Curve	(Watts)		63	125	250	500	1K	2K	4K	8K	Curve
1	160	Open inlet	45	44	57	50	48	40	27	27	35
		Open Outlet	51	58	67	69	67	63	55	46	53
		Breakout	47	56	58	57	52	54	45	44	41
2	90	Open inlet	43	42	55	44	42	35	22	22	32
		Open Outlet	48	56	64	64	58	58	50	40	47
		Breakout	45	53	55	52	44	46	37	36	35
3	44	Open inlet	42	38	50	38	34	28	17	17	25
		Open Outlet	43	52	55	56	49	49	40	33	38
		Breakout	43	51	52	48	38	40	31	30	28
4	20	Open inlet	38	35	41	29	27	23	12	12	14
		Open Outlet	43	47	47	46	39	37	30	23	25
		Breakout	41	47	47	42	29	31	22	21	22
5	11	Open inlet	36	34	34	26	24	20	11	4	11
		Open Outlet	37	38	38	37	30	24	21	8	16
		Breakout	37	47	38	34	20	16	7	6	14

The maximum power consumption shown above (Watts) is consumed on units running continuously, not taking into account any heat recovery saving and based on SAP Appendix Q testing. Hemispherical free field dBA.

Performance - MRXBOX95-LH2



CODE DESCRIPTION

MRXBOX95-LH2

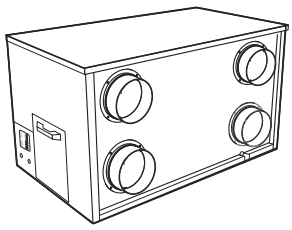
1 2 3 4 5

1. Multi-room supply and extract heat recovery
2. Product range
3. Efficiency
4. Loft application
5. H2 = High 2 Model

Sap Appendix Q Test Results

	MRXBOX95-LH2		
Application	Specific Fan Power (W/l/s)	Heat Exchange Efficiency	Energy Saving Trust Best Practice Compliant
Kitchen + 1 Wet Room	0.81	91%	Yes
Kitchen + 2 Wet Room	0.77	91%	Yes
Kitchen + 3 Wet Room	0.78	91%	Yes
Kitchen + 4 Wet Room	0.86	91%	Yes
Kitchen + 5 Wet Room	0.96	91%	Yes
Kitchen + 6 Wet Room	1.09	90%	Yes

Casing



Electrical & Sound

	Maximum power consumption		Sound Power Levels dB re 1pW								dBA @3m
Curve	(Watts)		63	125	250	500	1K	2K	4K	8K	Curve
1	277	Open inlet	50	54	62	62	55	47	39	38	43
		Open Outlet	56	65	72	77	69	69	61	54	58
		Breakout	56	64	69	69	60	60	52	50	51
2	170	Open inlet	46	48	58	52	48	42	30	33	36
		Open Outlet	51	61	70	74	64	64	56	48	55
		Breakout	51	60	67	66	53	55	47	44	47
3	106	Open inlet	44	46	57	43	42	37	30	33	33
		Open Outlet	50	58	65	63	58	59	50	40	47
		Breakout	50	57	62	55	47	50	41	36	40
4	62	Open inlet	43	42	54	38	37	31	30	33	29
		Open Outlet	50	53	59	60	52	52	42	34	42
		Breakout	50	52	56	52	41	43	33	30	34
5	11	Open inlet	40	39	41	30	28	24	21	24	18
		Open Outlet	41	49	49	49	42	41	30	33	32
		Breakout	42	49	46	41	31	32	21	20	24
6	11	Open inlet	36	33	34	24	22	19	20	23	13
		Open Outlet	40	38	39	38	32	30	29	30	22
		Breakout	40	38	36	30	21	21	20	18	14

The maximum power consumption shown above (Watts) is consumed on units running continuously, not taking into account any heat recovery saving and based on SAP Appendix Q testing. Hemispherical free field dBA.

Consultants Specification

OPERATION

The supply and extract ventilation unit shall be positioned as indicated on the drawings and shall be in accordance with the particular fan schedule in the specification.

The combined supply and extract with heat recovery unit, shall supply filtered fresh air to each of the habitable rooms and vitiated air shall be extracted from the wet areas e.g. bathroom, en-suite, w.c, kitchen, utility rooms, etc. The supply air shall be pre-heated by the warm extract air via the integrated counter-flow heat exchanger element.

The extracted air shall also be filtered before it reaches the heat exchanger block.

The ventilation unit shall vary its speed and therefore the ventilation rate, as it receives signals from one of the following:

• Switched live signal from light / remote switches.

When signals are received, the fan shall alter its speed to adjustable, normal and boost rates.

The unit shall have the facility to commission the supply and extract fans independently on minimum speed (continuous background ventilation), boost control will control both fans to the same volume, via inbuilt minimum and maximum speed adjustment;. The fans shall have infinitely variable speed control.

UNIT SPECIFICATION

The unit shall be fully insulated providing excellent thermal and acoustic characteristics and shall be complete with a multi plate counter flow high efficiency heat exchanger block, with a thermal efficiency of up to 95%. The heat exchanger shall be protected by G4 grade filters on fresh air inlet and system extract. The heat exchanger and filters shall be accessible via the top access panel, enabling quick and easy maintenance.

The unit shall have low energy, high efficiency EC fan/motor assemblies with sealed for life bearings, the impellers shall be backward curved centrifugal type.

The motors shall be suitable of an ambient temperature of 40ºC. The unit shall be supplied complete with an insulated condensate drip tray and 21.5mm drain connection.

The unit shall be suitable for 125mm circular ducting.

Anti-vibration mounts are supplied with each unit to prevent vibration being transmitted to the ceiling timbers.

The breakout noise level and power requirements shall be as detailed by the unit manufacturer and in accordance with the ventilation equipment schedule.

OPTIONAL SUMMER BYPASS

The bypass damper opens when a 230V signal is applied to the unit (via a manual switch, supplied). This opens the damper via an actuator. When the switch signal is de-activated the unit returns to its original state (air through the heat exchanger).

Outside air supplied through the bypass is still filtered, so the air quality is optimal, irrespective of the bypass setting (Open or closed).

CONTROL OPTIONS

All versions shall have the following functions integrally mounted within the fan unit on a purpose made PCB, all such components pre-wired and factory fitted by the manufacturer: -

- Independent control of background supply and extract flow rates.
- Single control of boost ventilation rates
- Run time monitor included
- Integral Fan failure indication.
- Integral S/L terminal for boost from remote switch, e.g. light switch.

OPTIONS CONTROL

MRXBOX95LH-RFI Remote fail indicator.

Units shall be the MRXBOX95-LH1 as manufactured by Nuaire.

OPTIONAL LOFT STAND

Mvhr-loft-stand.

MRXBOX-VSC (VISUAL SYSTEM CONTROLLER)

The MRXBOX-VSC is compatible with the Nuaire MRXBOX95-LH2 heat recovery unit and can be purchased separately. The controller comes complete with commissioning and end user functions.

The display will be a 3.2" LCD display and will remain on standby until such time the screen is touched.

The initial display will show the MVHR system status as listed below:

- Current Fan Speed
- Current indoor/outside temperature (MRXBOX95AB units only)
- Indicate when the summer bypass is activated
- Indicate when frost protection is activated
- Indicate when the filters require cleaning/changing.

MRXBOX95-LOFT

MRXBOX95-LOFT is designed to provide optimised balanced (supply and extract) mechanical ventilation with heat recovery. Tempered air is delivered into 'living' areas whilst extracting moisture laden air from 'wet' areas, creating comfortable well-ventilated homes.

MRXBOX95-LOFT uses the latest generation of low voltage DC fans and motors, counter flow heat exchanger and easy accessible controls. The heat exchanger block can recover up to 95% of the normally wasted heat. The two independent fans has full speed control for background and boost ventilation rates as well as a run-on timer facility. This unit is listed on the Product Characteristics Database.

FLEXIBLE SOLUTION

MRXBOX95-LOFT ensures a flexible solution with four 125mm dia.

OPTIONAL SUMMER BYPASS AVAILABLE

Provides cooling during warmer months. MRXBOX95B-LOFT.

OPTIONAL SENSORS AND DETECTORS

Customise MRXBOX95-LOFT for enhanced performance. All supplied with pre-plugged 10m data cable and incorporates status LED.

MRXBOX95-PIR (passive infra red)

A low voltage sensor detects movement and activates system. Incorporates overrun timer and timer adjustments.

MRXBOX95-HUM

A low voltage sensor activates the system when the RH level is above set point. Incorporates overrun timer and RH setpoint level adjustment.

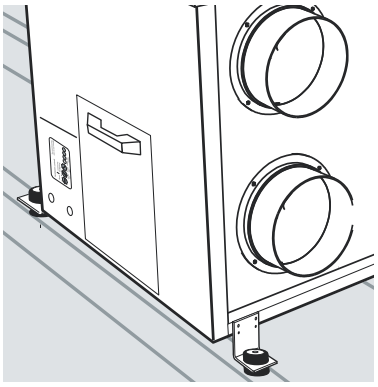
MRXBOX95-RFI

If fan failure occurs the audio visual indicator will flash a warning.

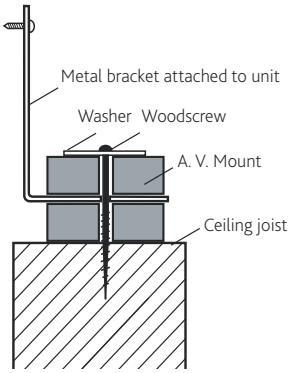
FOR SMALLER HOUSES.

Typical Installation - MRXBOX95-LOFT

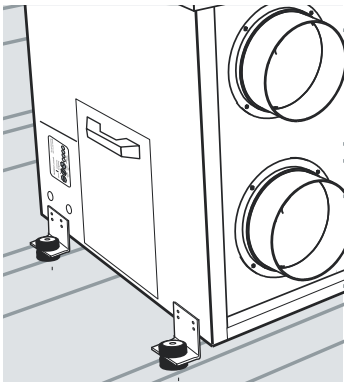
FLEXIBLE LOFT MOUNTING OPTIONS



Option 1
Mounted on roof joists using four "L" shape metal brackets and AV mounts on long sides of unit.



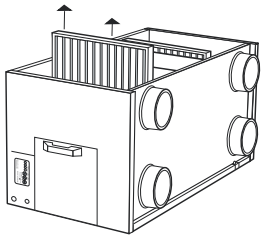
Side view example of an 'L' shaped fixing bracket and AV mount attached to ceiling joist.



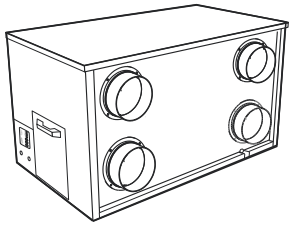
Option 2
Mounted on roof joists using four "L" shape metal brackets and AV mounts on short sides of unit.

REMOVABLE G4 FILTERS

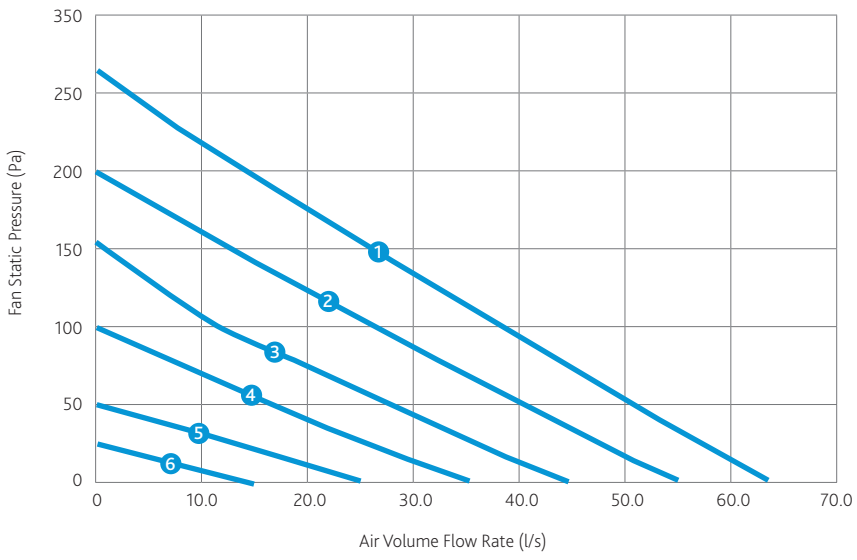
Filter Code
777674



Casing



Performance



CODE DESCRIPTION

MRXBOX95-LOFT

1 2 3 4

1. Multi-room supply and extract heat recovery
2. Product range
3. Efficiency
4. Loft application

Sap Appendix Q Test Results

	MRXBOX95-LOFT		
Application	Specific Fan Power (W/l/s)	Heat Exchange Efficiency	Energy Saving Trust Best Practice Compliant
Kitchen + 1 Wet Room	0.69	92%	Yes
Kitchen + 2 Wet Room	0.76	92%	Yes
Kitchen + 3 Wet Room	0.85	90%	Yes

Electrical & Sound

	Maximum power consumption		**Sound Power Levels dB re 1pW**								**dBA @3m**
Curve	(Watts)		63	125	250	500	1K	2K	4K	8K	Curve
1	73	Open inlet	38	42	48	43	42	32	29	29	28
		Open Outlet	40	56	56	59	54	51	45	34	42
		Breakout	43	55	53	51	43	42	36	31	34
2	51	Open inlet	37	41	46	41	38	28	25	25	25
		Open Outlet	39	55	54	57	50	47	41	30	39
		Breakout	42	54	51	49	39	38	32	27	32
3	31	Open inlet	34	40	43	35	37	28	22	19	23
		Open Outlet	38	49	51	52	48	43	35	30	35
		Breakout	38	48	48	44	37	34	26	27	27
4	20	Open inlet	33	38	44	32	32	23	17	14	20
		Open Outlet	37	48	49	49	43	38	30	25	32
		Breakout	37	46	46	41	32	29	21	22	24
5	12	Open inlet	30	34	38	23	19	10	4	-	13
		Open Outlet	34	44	43	40	30	25	17	12	22
		Breakout	34	42	40	42	19	16	8	9	22
6	7	Open inlet	28	32	32	20	14	5	-	-	<10
		Open Outlet	32	41	40	37	25	20	12	7	19
		Breakout	32	40	37	29	14	11	3	4	<10

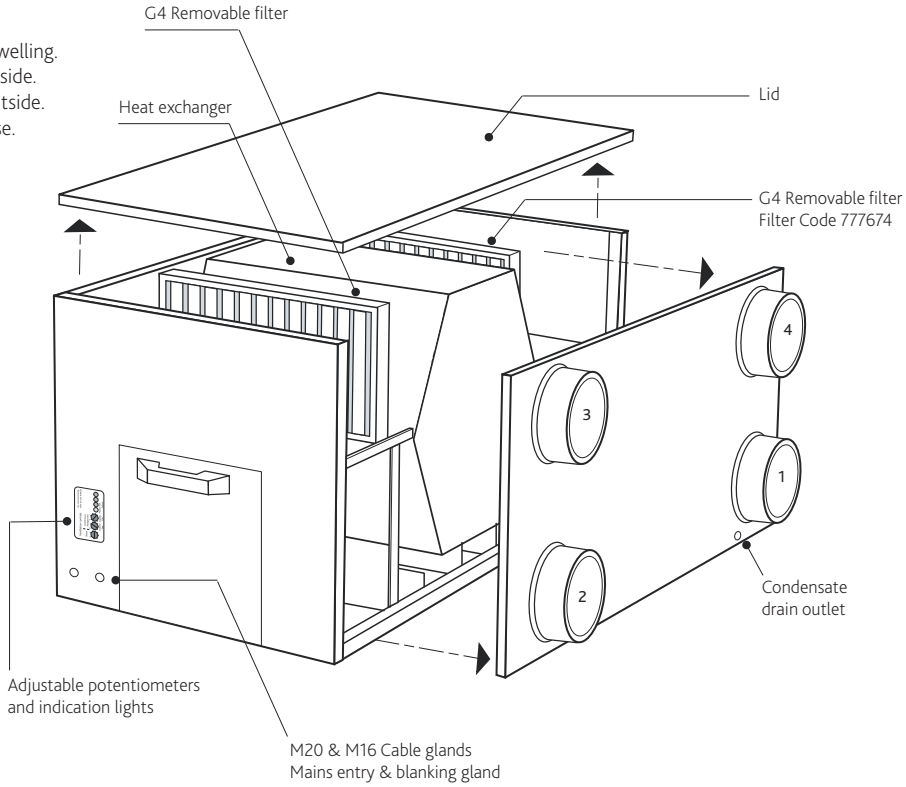
The maximum power consumption shown above (Watts) is consumed on units running continuously, not taking into account any heat recovery saving and based on SAP Appendix Q testing. Hemispherical free field dBA.

General Arrangement - MRXBOX95-LOFT

UNIT COMPONENTS

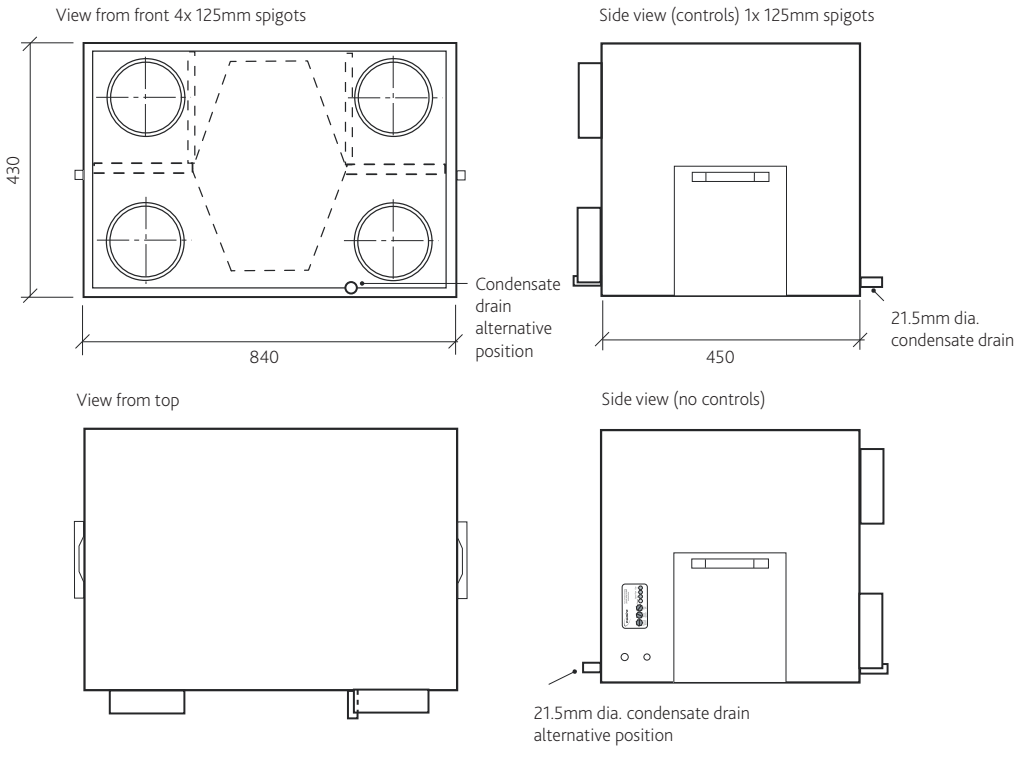
SPIGOT LOCATION & DUCTING REFERENCES

Spigot 1. 125mm dia. = extract air from dwelling.
Spigot 2. 125mm dia. = exhaust air to outside.
Spigot 3. 125mm dia. = intake air from outside.
Spigot 4. 125mm dia. = supply air to house.



DIMENSIONS (MM)

Weight - 27.5Kg

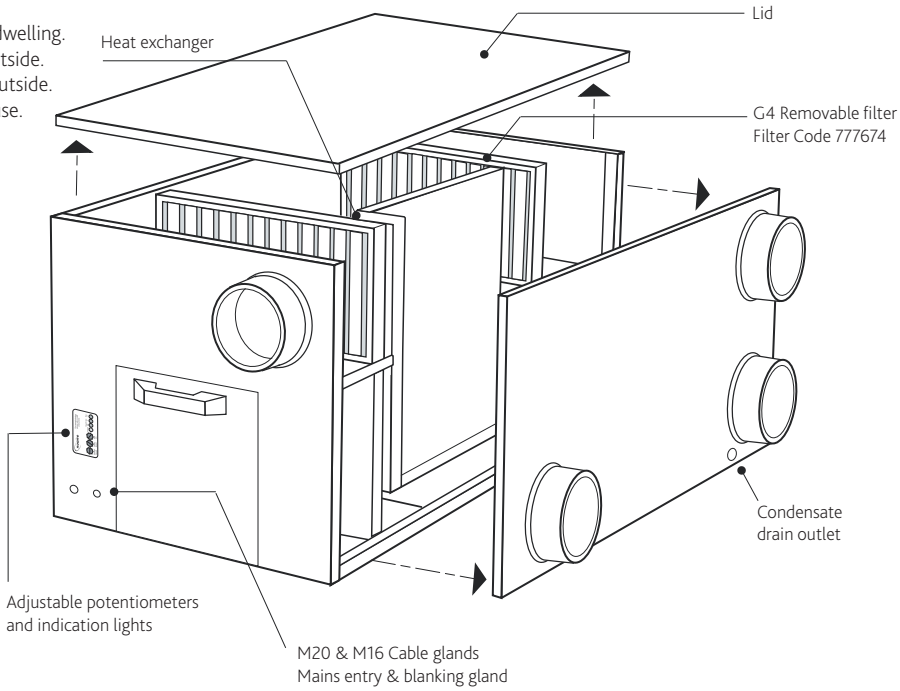


General Arrangement - MRXBOX95-LOFT

OPTIONAL SUMMER BYPASS

SPIGOT LOCATION &
DUCTING REFERENCES

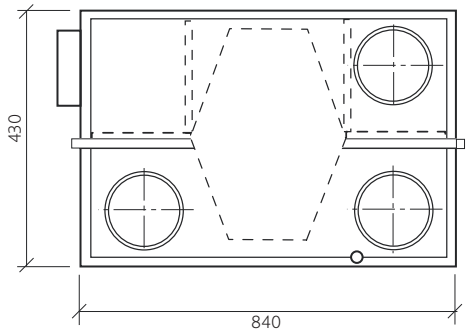
Spigot 1. 125mm dia. = extract air from dwelling.
Spigot 2. 125mm dia. = exhaust air to outside.
Spigot 3. 125mm dia. = intake air from outside.
Spigot 4. 125mm dia. = supply air to house.



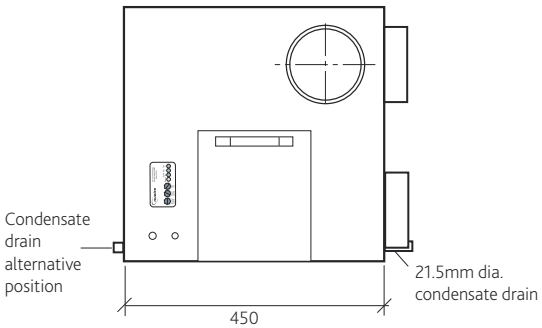
DIMENSIONS (MM)

Weight - 28Kg

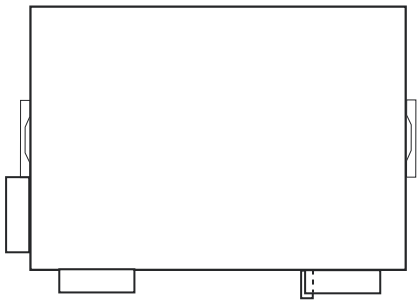
View from front 3x 125mm spigots



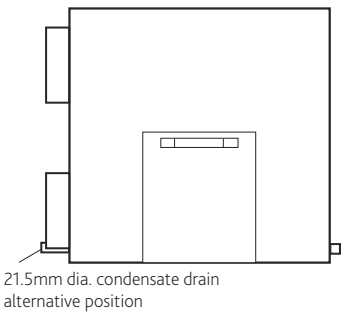
Side view (controls) 1x 125mm spigots



View from top



Side view (no controls)



Electrical Details - MRXBOX95-LOFT

Please note: the electrical connection of the unit must be carried out by a qualified electrician.

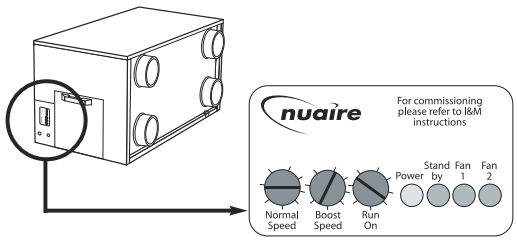
The unit is supplied with a flexible cord for connection to the mains supply.

NOTE: This unit must be earthed.

The mains power supply cable should be connected to a fixed wiring installation, via a fused isolator, in accordance with current IEE wiring regulations.

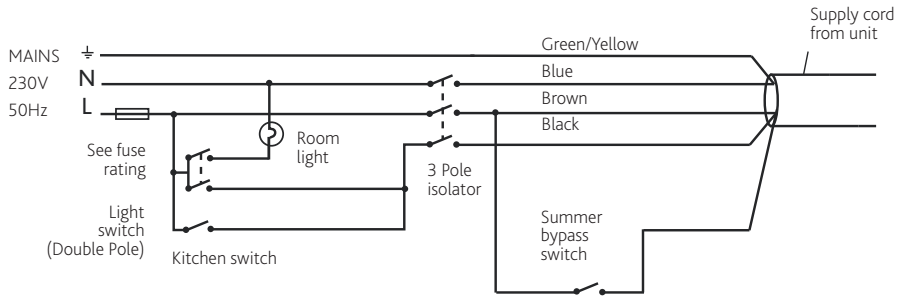
ELECTRICAL DETAILS: MRXBOX95 -LOFT	
Voltage:	230V 1ph 50Hz
Consumption:	75W (max) - 0.6 Amp
Fuse rating:	3 Amp

Detail of unit control on front panel.

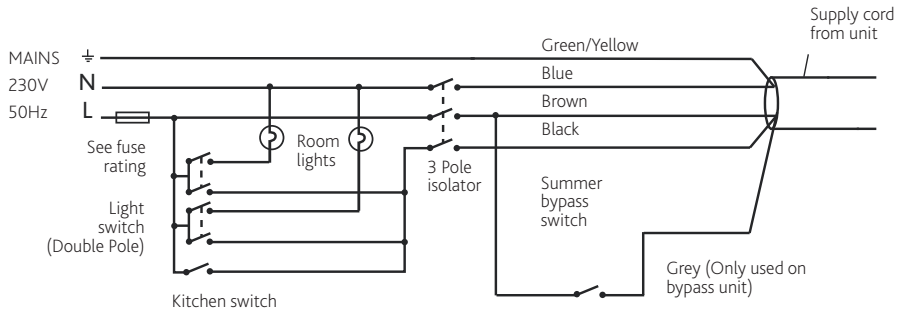


Wiring

UNIT SERVING KITCHEN & BATHROOM



UNIT SERVING KITCHEN & TWO BATHROOMS



Consultants Specification

OPERATION

The supply and extract system shall be positioned in the loft space in accordance with the specification.

The combined supply and extract with heat recovery unit, shall supply filtered fresh air to each of the habitable rooms and vitiated air shall be extracted from all wet areas e.g. bathroom, en-suite, w.c, kitchen, utility rooms, etc. The supply air shall be pre-heated by the warm extract air via the integrated counter-flow heat exchanger element.

The ventilation unit shall vary its speed and therefore the ventilation rate, as it receives signals from one of the following:

• Switched live signal from light / remote switches

• Optional externally interconnected sensors

When signals are received, the fan shall alter its speed to adjustable, normal and boost rates.

An adjustable run-on facility is integrated into the unit which allows the fans to run-on for between 1 and 60 minutes after the signals have been switched off.

The unit shall have the facility to commission the supply and extract fans via inbuilt minimum and maximum speed adjustment; the fans shall have infinitely variable speed control.

MRXBOX95-LOFT - UNIT SPECIFICATION

The unit shall be fully insulated providing excellent thermal and acoustic characteristics and shall be complete with a multi plate counter flow high efficiency heat exchanger block, with a thermal efficiency of up to 95%. The heat exchanger shall be protected by G4 grade filters on fresh air inlet and system extract. The heat exchanger and filters shall be accessible via the top access panel, enabling quick and easy maintenance.

The unit shall have low energy, high efficiency DC fan/motor assemblies with sealed for life bearings, the impellers shall be backward curved centrifugal type. The motors shall be suitable of an ambient temperature of 40ºC.

The unit shall be supplied complete with an insulated condensate drip tray and 21.5mm drain connection.

The unit shall be suitable for 125mm circular ducting.

Anti-vibration mounts are supplied with each unit to prevent vibration being transmitted to the ceiling timbers.

The breakout noise level and power requirements shall be as detailed by the unit manufacturer and in accordance with the ventilation equipment schedule.

OPTIONAL SUMMER BYPASS - MRXBOX95B-LOFT

The summer bypass facility during the warmer months can reduce the temperature in a room by a few degrees, whilst still ventilating that room effectively. The bypass damper opens when a 230V switch signal is applied to the unit. (via a manual switch) This opens the damper via a wax actuator. When the switch signal is de-activated the unit returns to its original state (air through the heat exchanger).

MRXBOX95-LOFT - CONTROL OPTIONS

All versions shall have the following functions integrally mounted within the fan unit on a purpose made PCB, all such components pre-wired and factory fitted by the manufacturer: -

- Integral speed control on supply and extract.
- Integral background ventilation control/set point.
- Integral boost ventilation control/set point.
- Integral run on timer.
- Fan failure indication.
- Integral S/L terminal for boost from remote switch, e.g. light switch.

OPTIONAL SENSORS

MRXBOX95-PIR Passive infra-red detector

MRXBOX95-HUM Humidistat

MRXBOX95-RFI Remote fail indicator

Units shall be the MRXBOX95-LOFT as manufactured by Nuaire.

Airepod
AP-MVHR-LL & AP-MVHR-RL

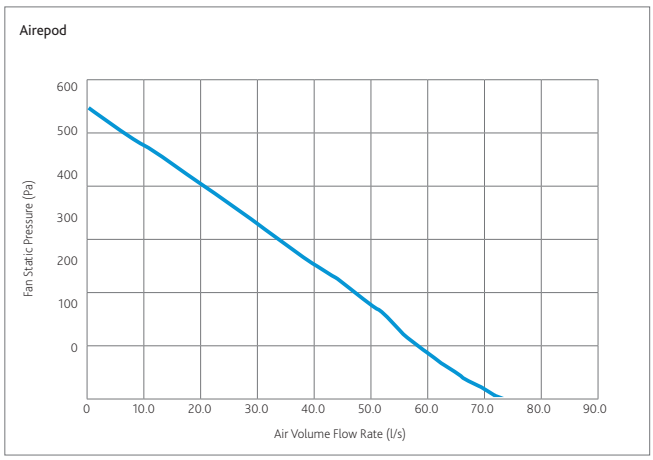
The Airepod system is a 90% efficient whole house/ apartment heat recovery unit which uniquely also provides a minimum of 70% of the apartment's heating, removing the need for a wet heating system. It replaces the typical inflexible wet heating system and removes the need for radiators. Airepod is a low-profile ceiling mounted system, just 235.0mm in depth, saving valuable storage space.

The 70% base heating load is delivered by an LTHW heating coil within the Airepod fed from either central CHP or energy centre. The remaining 30% of heat is provided by electric heaters within the duct system, or fan-coils in higher specification apartments.

Airepod uses a traditional heat exchanger but differs from conventional heat recovery systems in that it includes a third blower which allows additional, pre-tempered room air to be recirculated and mixed with incoming fresh air through the heater battery. Control of the recirculating fan is independent of the supply/extract fans. The approved document F ventilation rates are maintained at all times with the recirculating blower only topping up air-flow when heating is needed. Both units are listed on the Product Characteristics Database.

AIREPOD How does it work?

Performance



Sap Appendix Q Test Results

	AP-MVHR-LL / AP-MVHR-RL	
Application	Specific Fan Power (W/l/s)	Heat Exchange Efficiency
Kitchen + 1 Wet Room	0.67	86%
Kitchen + 2 Wet Rooms	0.66	86%
Kitchen + 3 Wet Rooms	0.7	86%
Kitchen + 4 Wet Rooms	0.8	86%
Kitchen + 5 Wet Rooms	0.89	85%
Kitchen + 6 Wet Rooms	1.07	85%

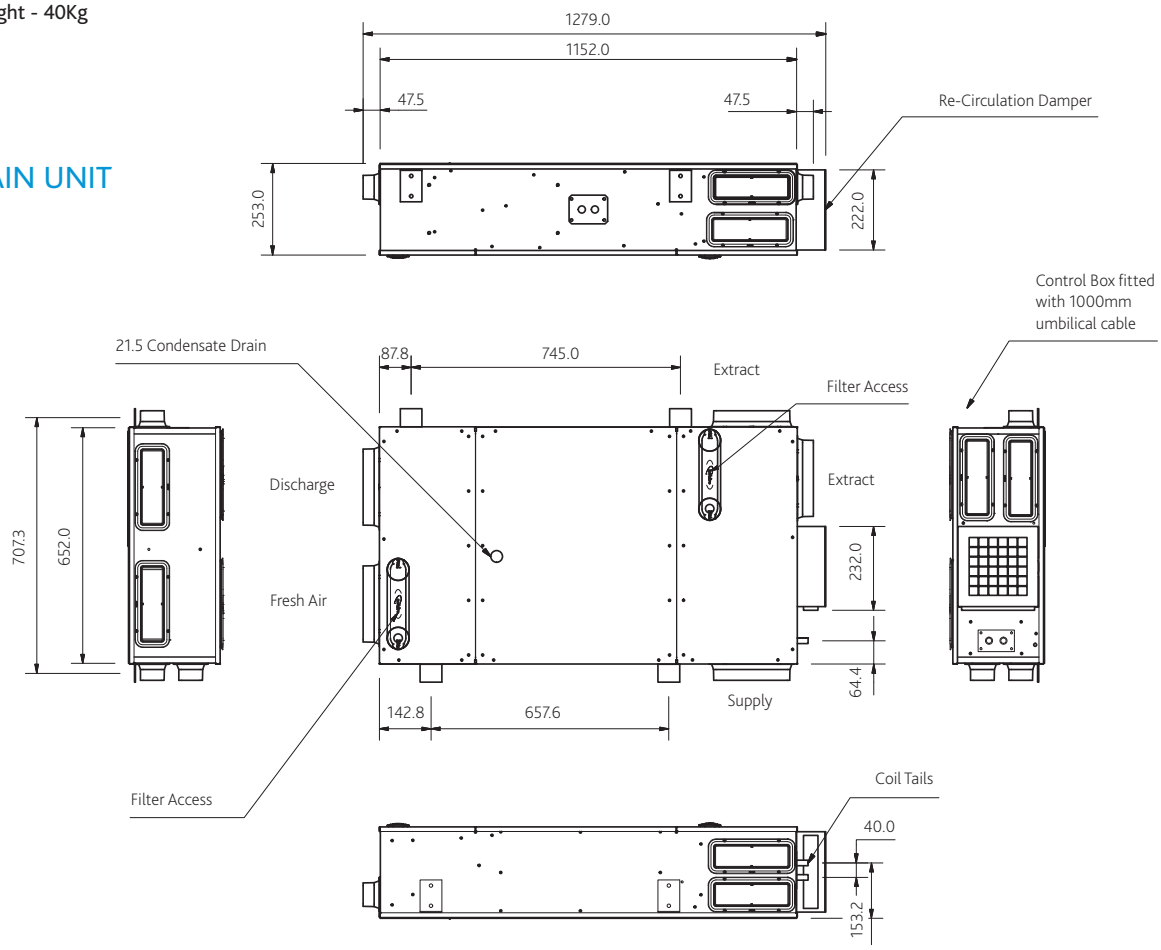
Call for further information
Tel: 029 2085 8500
Email: enquiries@nuaire.co.uk

General Arrangement

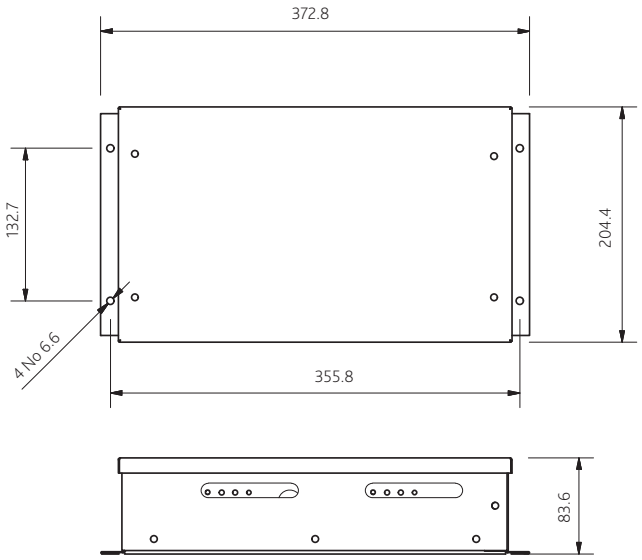
DIMENSIONS (MM)

Weight - 40Kg

MAIN UNIT



CONTROL BOX



Consultants Specification

OPERATION

The Nuaire AP-MVHR-LL/RL unit fulfils two separate, but related functions and is available as either Left-hand Low-pressure (LL), or Right-hand Low-pressure (RL).

The unit provides continuous ventilation for the apartment – supply ventilation (fresh, outside air ducted to the "habitable" rooms), and extract ventilation (vitiated air extracted from the "wet" rooms, and discharged from the building). The unit incorporates a high efficiency heat recovery section that transfers heat from the extract air, and uses it to warm the supply air. This arrangement reduces the ventilation heating load.

The heat recovery section includes a bypass arrangement that may be used to prevent heat transfer occurring in operational periods when heating is not required.

The additional function is to provide a percentage of the overall heating requirement for the apartment.

This heating is provided by a LTHW coil that is mounted within the MVHR unit.

The outside air supply and vitiated air extract rates are to be determined (for each apartment) by the methods described in Approved Document F (Ventilation).

Typically, for ventilation only, there are a number of operating conditions :-

Whole Dwelling Supply Rate (WDSR)– based on the number of bedrooms or 0.3 l/s per m2 of floor area.

High extract rate (HER), based on pre-set values for type and quantity of wet rooms.

Low extract rate (LER), equal to the Whole Dwelling Supply Rate.

The ventilation air flow rates for each apartment therefore must be individually determined.

Unit operation at the HER is typically initiated by manual switch and / or light switch interface.

For the heating function, there is a different airflow criterion to meet, as the heating input must be delivered at maximum temperature of 50 deg C.

Again, the heat loss conditions are specific to, and must be determined for, each apartment.

If the heat loads and supply temperature limit require supply flow rates that are greater than the standard ventilation rates, this can be economically accomplished by means of the re-circulation feature within the Nuaire AP-MVHR-LL/RL unit.

The maximum supply air flow rate that can be achieved in this manner will be limited principally by the ductwork resistance, and acceptable noise levels within the apartment.

HEAT RECOVERY BYPASS OPERATION

The Nuaire AP-MVHR-LL/RL unit incorporates a high efficiency counter-flow heat recovery device, with a 100% bypass facility. It should be understood that the heat recovery bypass operation serves only to prevent unwanted heat gain in the supply air stream from the extract air stream. It is a passive control measure – the resultant supply air temperature in bypass mode being simply that of the outside air temperature. In heat recovery mode, the supply air temperature will fall between that of the outside air and that of the room return air, and largely biased towards the higher of the two – regardless of which this is.

The bypass damper is not capable of modulation. Control of the bypass damper shall be by others (switched mains signal).

FREE COOLING

Because of the relatively low airflow rates delivered by a residential ventilation system, the potential for free cooling by means of the bypass is extremely limited.

HEATING

Control of the LTHW heating coil output shall be by others. Operation of the unit heating coil, shall necessitate the supply system operation at the boost rate, and where appropriate, the operation of the re-circulation fan / damper.

CONDENSATE

In the course of normal operation, it is to be expected that condensate will be produced as a result of the cooling of the extract air-stream. Condensate is discharged from the unit via a plain un-trapped connection.

UNIT FAIL SIGNAL

A common fault output is available at the unit, and should be verified as clear prior to operation of any heating mode.

(Note – the consultant engineer has recently requested independent fan failure indication. This is under evaluation, but does not currently form part of the product specification).

SOCIAL HOUSING APPLICATIONS

In these properties, the additional 30% of the base heating input is to be provided by burst fire controlled duct mounted electric heaters. One heater is to be provided for each habitable room.

The control of these heaters shall be by individual room set-point controller. The output of these controllers is directly applied to the relevant burst fired controlled heater.

These controllers shall be enabled by the central controller whenever heating is required in the apartment, and this enable signal shall necessitate the supply system operation at boost rate, and where appropriate, the operation of the re-circulation fan / damper.

NUAIRE SUMMARY:-

- Supply - at a minimum rate of WDSR, and at a maximum rate determined by the heating requirement, and initiated by a switched 230 V HEATING ENABLE signal from the central controller. Maximum rate operation may include operation of the unit's re-circulation function
- Extract – at a minimum rate of LER, and at a maximum rate of HER when initiated by manual switch / light switch (230V signal)
- Bypass – limits heat pick up in the supply air. Bypass operation shall be controlled by switched 230 V signal from the central controller or other source
- Common fault signal – Available at unit. Unit operation shall be verified prior to operation of heating system. (NB this is essential for the electrical heating system for social housing)
- LTHW heating coil – control by others.

SOCIAL HOUSING APARTMENTS

The system shall include duct mounted electric heaters, with burst fired electric controllers.

Each habitable room shall be provided with an individual heating set-point control.

This control shall be enabled by a switched 230 V HEATING ENABLE signal from the central controller that simultaneously boosts the supply airflow rate.

OUTLINE SPECIFICATION

It is anticipated that apartment layouts and utility cupboard restrictions will result in the requirement for a number of product configurations. Generally these do not affect product costs.

The MVHR unit shall provide supply and extract ventilation and part of the heating requirement for the dwellings.

The unit shall incorporate high efficiency supply and extract fans of backward curved centrifugal design with integral EC type motors.

The unit shall incorporate a high efficiency counter- flow heat recovery module c/w 100% bypass facility.

The unit shall incorporate a LTHW heating coil (capacity specific to property requirements). The coil connections (15mm copper x 2) shall terminate outside the unit casing for connection to third party valve gear.

The unit shall incorporate a re-circulation facility, with damper, damper actuator, and high efficiency fan of backward curved centrifugal design with integral EC type motor.

The unit shall incorporate an insulated drip tray for collection of condensate generated by the heat recovery device. A condensate drain connection shall be provided, terminating outside the unit casing (trapping, by others, is normally required when connecting to household drainage. Use of the Nuaire product - MVHR-DRAIN is recommended).

The unit casing shall be manufactured in galvanised mild steel (natural finish), acoustically and thermally insulated to a level appropriate for the application.

Screw fastened access panels shall be provided, enabling all required maintenance functions to be carried out.

The unit shall be provided with 4 brackets and threaded mounting points to enable fixing to the ceiling slab.

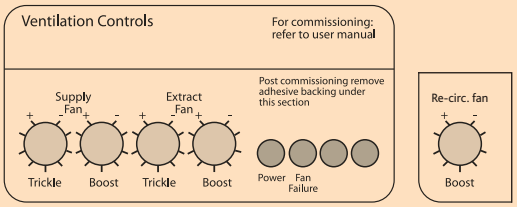
Ductwork connection spigots (sheet metal or PVC mouldings) shall be provided.

An electrical connection box, with terminal strips, shall be provided, fixed to the outside of the unit casing, for connection to mains power and the third party controller. (The unit does not incorporate a means of electrical isolation.) N.B. Control cables should not be routed within 50mm of mains supply cables.

Unit current rating:- 1.5 A Fusing requirement :- 3A Power supply 1 ph. 230 V 50 Hz AC. This unit must be earthed.

Controls – the unit shall be fitted with a local control having the following functionality:-

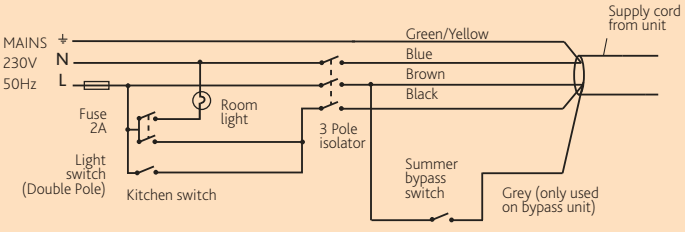
- 2 stage speed / duty adjustment of the supply and extract fans, and single duty adjustment of the recirculation fan.



Bypass control terminals	(230 V AC)	(Bypass actuator fitted and connected internally)
Heating Enable terminals	(230 V AC)	(Boosts unit flow rate and initiates Re-circulation fan / damper operation if required)

Typical wiring example - manual control of High/Low flow rate by light switch.

UNIT SERVING KITCHEN AND BATHROOM



Acoustic solution for MRXBOX95-WH1/WM2

Nuaire's First Fix and Acoustic Solution are designed to not only reduce noise but to improve the installation when wall or cupboard mounting the MRXBOX95-WH1/WM2 MVHR Units.

Offering the only complete MVHR acoustic and first fix solution to overcome both noise and ease the installation of heat recovery units; Nuaire's solution addresses both duct and breakout noise; provides an aesthetically pleasing cupboard installation for the home occupant and reduces installation errors and time.

Typical Installation

FIRST FIX SOLUTION MRXBOX-FF-WH1/WM2

Nuaire's First Fix box is fixed to the underside of the floor slab at first fix stage of the build. The box has four airflow chambers pre-fitted with 204x60mm spigots. Ceilings can then be boarded within the cupboard space easily and quickly without the risk of the spigots not aligning to the fan unit.

MRXBOX-FF-WH1

ACOUSTIC BOX MRXBOX-AB-WH1/WM2

Nuaire has created a unique solution that is not only designed to reduce noise significantly, addressing duct and breakout noise but is visibly appealing for the home occupant. It can be used with or without the First Fix Solution.

MRXBOX95B-WH1/WM2

Nuaire's Acoustic Box and First Fix solution are compatible with the MRXBOX95(AB)-WH1 and MRXBOX95(AB)-WM2 heat recovery units, which are designed for medium to large properties.

Electrical & Sound

Sound data without Acoustic Box	
Acoustic performance to BS848 Part 2.2 and AMCA 300	
	dBA@3m
Breakout Noise (dBA)	28
Inlet Noise (dBA)	25
Outlet Noise (dBA)	40

Breakout level is hemispherical. For spherical deduct 3 dBA								
Sound Power Levels re 1 pWatts (Hz)								
Hz	63	125	250	500	1k	2k	4k	8k
Open Inlet	45	48	53	43	38	30	16	<16
Open Outlet	53	60	62	61	53	51	41	32
Breakout	53	58	54	47	34	31	16	<16

Above noise calculated speed controlled to require duty (66.4%)

For 100% Speed	+3	+3	+5	+6	+9	+9	+9	+9
Breakout Noise (dBA)	+8							
Inlet Noise (dBA)	+9							
Outlet Noise	+11							

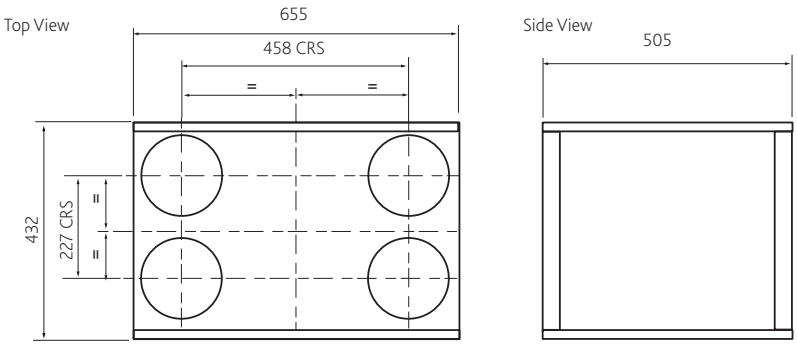
With Acoustic Box

Supply/Discharge	-8	-10	-8	-14	-23	-26	-20	-15
Inlet Noise (dBA)	-8	-4	-6	-8	-22	-24	-16	-115

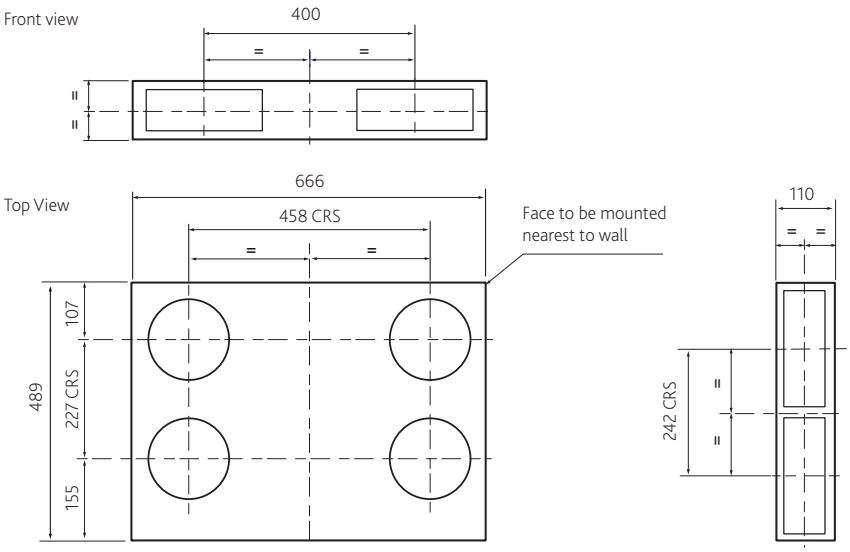
Technical

DIMENSIONS (MM)

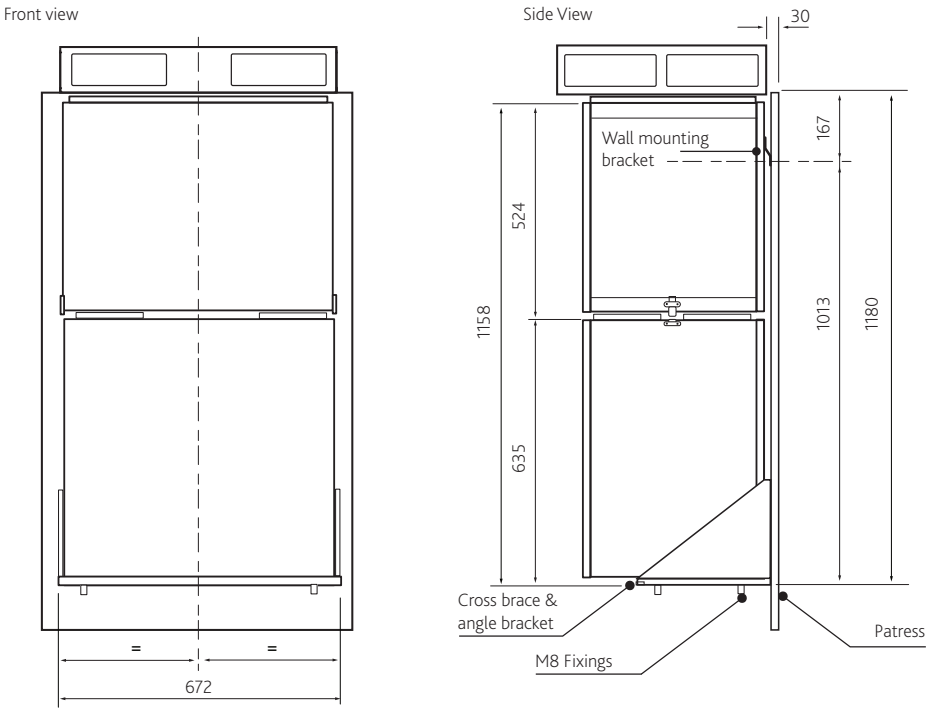
MRXBOX95-AB-WH1



MRXBOX95-FF-WH1



COMPLETED SYSTEM



Consultants Specification

MRXBOX-FF-WH1/WM2

The unit shall be supplied with 204mm x 60mm rectangular spigots to connect to the duct run, with the ability to be fitted in eight separate positions reducing the requirement for bends in the system.

The unit offers the facility to be fitted directly to the mating sections without the need for spigots reducing breakout noise, additional 150mm circular spigots to be supplied as an alternative option.

MRXBOX-AB-WH1/WM2

The unit offers the facility to be fitted directly to the MVHR unit and plenum chamber without the need for spigots reducing breakout noise, however, there is the capability to fit 150mm circular spigots as an alternative option.

The unit shall be fully lined with acoustic material offering excellent noise reduction.

Wall mounting brackets are to be supplied as part of the system to allow the MVHR unit to be raised after other system components are installed to form an airtight seal and enable the installation to be levelled.

The unit shall be clamped to the MRXBOX95-WH1/WM2 unit to provide an efficient seal and ensure correct alignment.

The unit shall be fixed in position during installation as a standalone section without relying on other system elements.

Acoustic Ventilator

Nuaire Acoustically treated ventilator minimises noise pollution when background ventilation is required.

The provision of fresh air for rapid ventilation to all apartments is to be available without any inconvenience that may be caused by noise pollution from the road immediately adjacent to the development. To this end any apartments situated on the main road are to be provided with an acoustically treated ventilator. These are to be situated in the external wall of any room overlooking the road.

N.B. ALL rooms in corner/end apartments where one or more rooms overlook the road are to have the acoustic ventilators provided, regardless of that particular room's proximity to the road.

Features

- Manual operation for total flexibility
- Airflow 38l/s @ 50Pa when fully open
- Prevents ingress of wind, rain etc with externally fitted baffle
- Aluzinc finish can be painted to allow blending into any environment
- Telescopic design allows for differing wall thicknesses
- Class 0 rated flame retardant acoustic material
- SRL test report available
- 3 year warranty

The acoustic ventilator shall be a manually operated device used at the discretion of the apartment's occupier and when in use shall allow fresh air to pass into the room in question. The fresh air flow will be a combination of natural infiltration and fan assisted via the apartment's ventilation system. The unit's air flow characteristic shall be 38l/s @50Pa when the adjustable regulating plate is fully open. When the acoustic ventilator is in use any externally generated noise from the adjacent road shall be kept to acceptable levels and shall be equivalent to that of the particular unit specified elsewhere in this document.

The acoustic ventilator shall have a baffle plate mounted externally and an adjustable regulating plate on the internal face both suitable for paint finishing. The external baffle shall act as a weather shield stopping the ingress of wind, rain, etc. and shall be manufactured from aluminium alloy. The adjustable regulating plate shall be of a blank appearance so as to appear neutral to the wall in which it is situated. The adjustable regulating plate will be hinged for operation; the hinge mechanism will be graduated to facilitate the adjustment.

The unit casing shall be manufactured from Aluzinc corrosion protected steel and shall be of a minimum 1.5mm thickness.

The unit dimensions shall be 450mm wide x 200mm high x 200mm deep (min), the depth of the unit shall be telescopic to suit different wall thicknesses; this facility shall not affect the acoustic properties or the air flow characteristics of the acoustic ventilator.

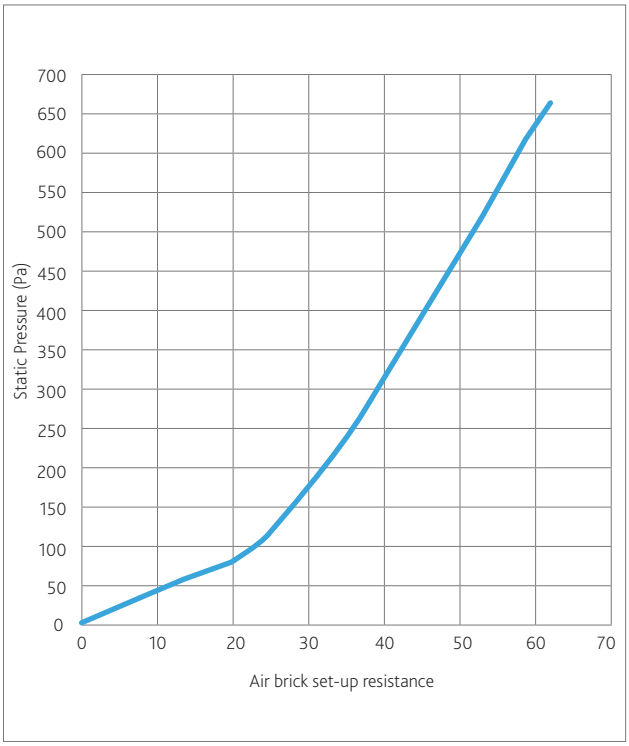
The acoustic media used within the unit shall be flame retardant material, Class 0 rated. Unit shall be all as per model reference ACC-400 as manufactured by Nuaire Ltd.

The unit shall have a 3 year warranty.

Acoustic performance

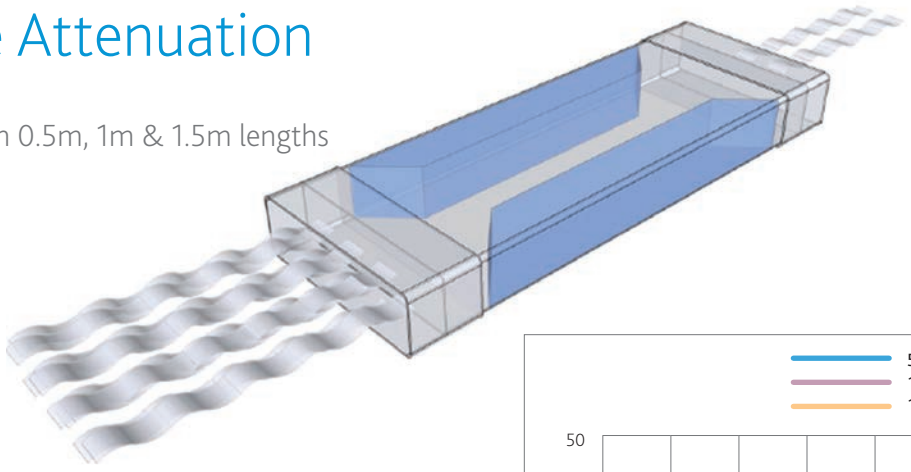
(Summary – for full data see SRL test report C/04/5L/3108/1 method BS EN ISO 717-1:1997).

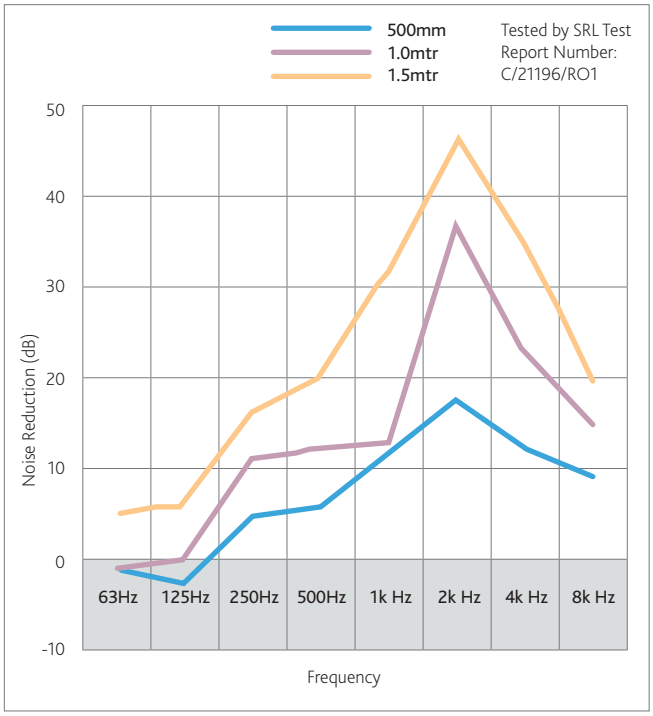
Vent in closed position:-	Rw (C;Ctr)	54
Vent in open position:-	Rw (C;Ctr)	46
For comparison, 220mm cavity wall without penetration:-		
	Rw (C;Ctr)	58



Inline Attenuation

Available in 0.5m, 1m & 1.5m lengths





Features

- Regulation driven to reduce duct noise for designers "Domestic Compliance Guide 2010" & noise requirements Part F 2010
- Corrosion Proof - Lightweight PVC removes the risk of corrosion
- Reduce cross talk room to room noise
- Prevents noise ingress for inner city development
- Space Saving - Slim line low profile design for integration within your ducting system

PRODUCT RANGE

Silencer Code	Description	Width	Length	Height
PVCSIL-500	System 204 Duct Silencer x 500mm	204mm	580mm	65mm
PVCSIL-1000	System 204 Duct Silencer x 1.0mtr	204mm	1080mm	65mm
PVCSIL-1500	System 204 Duct Silencer x 1.5mtr	204mm	1580mm	65mm

THE LEVEL OF SOUND ABSORPTION

Silencer Length	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz
500mm	-3	5	6	12	18	12	9
1.0mtr	0	11	12	13	37	23	15
1.5mtr	6	16	20	32	47	35	20

STATIC PRESSURE DROP IN PASCALS (PA) VERSUS FLOW RATE (L/S)

Approximate l/s		15	30	60	90	120	150
PVCSIL-500	pa	10.5	18.5	100	213	371	576
PVCSIL-1000	pa	10.4	17.2	107	234	373	578
PVCSIL-1500	pa	8.2	23.5	107	230	412	595

Notes

Notes

NUAIRE LIMITED

Western Industrial Estate
Caerphilly
CF83 1NA

Residential product orders or enquiry:
Tel: +44 (0)29 2085 8500
Fax: +44 (0)29 2085 8555
info@nuaire.co.uk

After sales technical support:
Tel: +44(0)29 2085 8400
Fax: +44(0)29 2085 8555
info@nuaire.co.uk

www.nuaire.co.uk

@nuaireHomes

As part of our policy of continuous product development Nuaire reserves the right to alter specifications without prior notice.
Telephone calls may be recorded for quality and training purposes.

12.14